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ORIGINAL ARTICLES.

DIAGNOSIS IN DISEASES OF INFANTS AND CHILDREN.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

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MINNEAPOLIS, MINN.

Candor compels me to admit that upon more extensive investigation than I have hitherto made, I found that much more had been done and said, and better done and said, upon this subject than I was previously aware of, but found the subject matter widely scattered throughout voluminous medical literature.

Inasmuch as we are compelled to study and practice every department of medicine before we can become at all skillful in pediatrics, it would be most unsatisfactory to attempt to discuss diagnosis in this special department without first reviewing the subject of diagnosis in general, as it applies more or less to all ages and conditions of life. For we must and do endeavor to instruct our students, that pediatrics can never become "a specialty," as that term can only and properly be applied to the *study* and *treatment* of diseases of special organs or parts of the body, while pediatrics deals with the entire system; though only with "little men and women." And as the true "specialist" will be successful in his "specialty" just in proportion as he has mastered all departments of medicine, so the pediatrist will be proficient in his "limited practice" precisely to the extent that he has learned all other branches of our art.

Some one has well said that the pediatrist must be a good all-round physician and something more; and we are here to-day to discuss that *something more* in our line; I shall only attempt to consider it more especially from the standpoint of the college instructor, and in its relation to our students and young practitioners. The proper discussion of this subject would seem to suggest inquiries something like these: 1. What is the import and scope of diagnosis? Wherein its intricacies, and what relation does it sustain to other branches of medicine? 2. What special features does it possess in its relations to diseases of early life? 3. What is the present status of this department of our art as compared with the past? 4. Can it be in any way rendered more accessible and comprehensible to our students and young practitioners? 5. Is there a demand for a treatise on the "Diagnosis of the Diseases of Infancy and Childhood, general and special, medical and surgical?"

I can not presume to be able to answer all of them satisfactorily, except in a general way, but have endeavored to present in as concise form as seemed possible some suggestions along this line of thought for further elaboration in the discussion which it may elicit from you.

If I may be pardoned for an attempt at definition of my subject, "Diagnosis," before this learned body of medical men, it would be "the faculty of recognizing diseases so as to locate and name them with facility by the correct interpretation of their pathologic and clinical symptoms, and thus to be able to differentiate each one from all others."

Of the many difficult problems in medicine which confront our students on leaving our college halls to enter upon the general practice of medicine, diagnosis is the most difficult and puzzling. So it probably was with most of us, and so it doubtless will be to them for years to come, despite our best efforts to assist and prepare them for it.

We will not wonder that proficiency in the art of diagnosing is difficult to attain when we fully appreciate the fact that it is the practical application of all we really know of medicine. It is the apex of the grand pyramid of medical science and art, whose base has been founded upon the enduring principles of anatomy, physiology and pathology. It is, therefore, the real practical test of every physician's medical education and skill, and just in proportion as he possesses faculties and facilities for correct observation and analytic reasoning will he become proficient in correctly interpreting the various phases and symptoms of disease, and we all appreciate the fact that it demands even more skill and native tact to rightly interpret the various peculiar phases of morbid action in infants and young children, where we are deprived of the aid of speech, and who are often unapproachable, than it does in adults where we can better secure from themselves the history of the case, the location of the pain and the important subjective symptoms which they are experiencing.

Diagnosis to the skilled physician is much like an intricate case at law being tried before a competent judge, who renders his decision only after all the conflicting evidence "is in" and carefully weighed and sifted. And as anatomy, physiology and pathology are the "A B C" of medicine, so etiology and symptomatology (illuminated by ample clinical and laboratory investigations) are the "cathode rays" which illuminate the deeper hidden mysteries of disease and render them accessible to our comprehension.

Dr. Dorning has well said that: "The only enduring foundation for the superstructure of diagnostic proficiency is in systematic and exhaustive study at the bedside, combined with diligent and conscientious research in the laboratory."

It is a lamentable fact that many men in our profession never make good diagnosticians even after enjoying ample opportunities. And it has been demonstrated to me many times during my long professional life that many otherwise fairly good practitioners have betrayed the fact that they were more defective in diagnostic capability than in any other faculty.

There seems to be with some men something like "a natural tact" in this matter, which only a comparatively few possess in any eminent degree. But if all can not be Da Costas in this faculty, we probably have a right to expect that our students can and ought to be taught to recognize at least typical forms of disease as they meet them on entering general practice.

The faculty of correct and systematic examination of the patient seems difficult for many men to learn. They seem to proceed in a rambling and desultory manner, as if they had no specific aim, to accomplish either by questions asked or in their estimation of the value of essential symptoms. And this, too, notwithstanding our best endeavors to teach them system; and emphasizing the fact that they are often required to ascertain what the disease is *not*, in order to determine what it *is:* "Diagnosis by *exclusion*, *negation* or *elimination*" so exceptionally well illustrated by Da Costa.

After a thorough familiarity with all the departments of medicine, and an ability for systematic examination of the patient, our diagnosis will be predicated for the most part: 1, upon the "physical signs" as they appeal to our trained special senses; 2, the symptoms as they indicate deviation of function; 3, the history of the case as we elicit it from the patient or friends.

Diagnosis being a science and art, which teaches us to distinguish one disease from another by tracing symptoms to the causes from which they originate, must be valuable not only for purposes of *treatment*, but enables us also to form a correct opinion as to the *result* of the disease (*i. e.*, prognosis), for without correct *diagnosis* there can be no correct *prognosis* nor treatment.

We have all seen physicians, with more ingenuity than skill, excuse their inability to render an exact diagnosis by assuring the interested parties that an exact diagnosis is no longer demanded in most cases; as we do not now treat the *name* of a disease; but have learned to search out the *indications* of treatment and meet them *pro re nata* with our therapeutic agents. All of which might sound satisfactory to the unskilled, but would hardly satisfy a diagnostician, for he will understand that, as a rule with few exceptions, we can only learn the "indications of treatment" by recognizing the disease; that we must know what the disease is, its true nature and location before we can expect to remedy it.

Doubtless many young physicians fail at first in diagnosis from the fact that they have not yet sufficiently acquainted themselves with normal conditions and processes of the human system, notwithstanding we are emphasizing the facts before our students as much as seems possible that they *must* become well acquainted with *normal* appearances before they can appreciate the departures or deviations; that they must know what symptoms mean in individual cases before they can combat them successfully, and often in order to illustrate and emphasize our teaching, remind them of the impossibility of treating successfully such symtomatic conditions as we meet in eclampsia, dropsy, jaundice, dyspepsia, constipation, headache or even *pain*, fever and many like morbid phenomena, which we all know are only external exponents of various internal processes, without *knowing* the *nature* of the proximate *cause*.

All that has thus far been said and all that can be said of the intricacies and learning and skill requisite to meet the complexities of diagnosis in general, obtains in accentuated form in the diagnosis of the diseases of infant and children, for we soon recognize the fact that exact and even early diagnosis in the various ailments of young children is more important often than it would be in adults; partly, it may be, on account of the demand for early prophylactic measures being enforced, if it should prove to be an infectious disease to which young children are peculiarly liable; as also from the well-known fact that many acute ailments run a more rapid and violent course in early life. So intricate, indeed, is this matter that few of us, perhaps, will ever become so gray, experienced and skillful that we may not sometimes make mistakes in diagnosis. I yet remember when Professor Yandell of the University of Louisville, Kentucky, apologized to the class for his inability to render a diagnosis in a case which proved upon postmortem to have been gangrene of lungs, by assuring us that he had followed the great Louis through the wards of the hospitals of Paris and saw him write over some of the beds for several days together, "No diagnosis."

Many ailments of young children simulate each other in clinic features so closely that it is impossible for a while to render a positive differential diagnosis. Not long since I saw an attack of what proved to be typhoid fever in a child diagnosed for several days as "meningitis," without much suspicion of its incorrectness, on account of the peculiar cerebral and neurotic symptoms present, and this, too, by several of our most skillful and experienced physicians.

Who of us have not, at some time, been perplexed for a while in rendering a differential diagnosis between such similar appearing affections as "non-specific pseudo-membranous laryngitis" and true "diphtheritic laryngitis," or between convulsions (centric or eccentric) and epilepsy, or between pertussis in its first stages and catarrhal bronchitis in young children?

Professor Jacobi has truly said "that there is scarcely a tissue or organ which behaves exactly alike in the different periods of life," and the same distinguished author reminds us (Cyclopedia of Diseases of Children) that pneumonia, tuberculosis, typhoid fever, rheumatism, epilepsy, diabetes and many other affections of the young differ considerably from the same affections in the adult in their clinic symptoms, and even sometimes in their anatomic aspect. But of all the manifold ailments of early life perhaps none are more generally difficult to diagnose correctly and promptly than the various protean, nervous and cutaneous affections, to determine whether they are simple or complex, idiopathic, symptomatic or sympathetic; whether organic or merely local or functional in their nature.

One of the most unsatisfactory features of diagnosis in young children has often been the impossibility of eliciting or of correctly interpreting the "physical signs" in affections of the heart, lungs, pleura, etc., this partly from the deviations of the sound elicited upon percussion and auscultation, and partly it is often from our inability to approach or control the child in a satisfactory manner. I doubt, indeed, whether physical sounds in the chest afford us the assistance in diagnosis in young children that they do in adults. We are constantly reminded also that not only do diseases more frequently hybridize in early life, but also that many of the causes, symptoms and even diseases themselves are peculiar to that period of existence.

It is a recognized fact that diagnosis can sometimes be either confirmed or corrected by noting the peculiar behavior of our therapeutic agents in special cases, notably, opiates, antipyretics, digitalis, belladonna, etc., more especially liable to be manifested in cerebral, cardiac and certain pulmonary affections, typhoid fever and other diseases in the young. All of these peculiarities and perplexities in the diagnosis of children's affections are being emphasized and elucidated in many ways by those who are authority in these matters, and the advances in pediatrics and helps in methods of diagnosis within a few decades have been most gratifying, especially to some of us older members of the profession. When I entered the medical profession in 1859, pediatrics was in its infancy in this country. I know of but one text-book at that time exclusively upon "Diseases of Children," by an American author, and that was by D. F. Condie of Philadelphia, and almost without tables and illustrations, which constitute such an admirable feature of all our recent text-books on pediatrics, which are now numbered by the dozens.

At that time pediatrics had little recognition in any of our schools. I remember, however, that a great impetus in the evolution of this department was inaugurated very soon thereafter (about 1860) principally through the efforts of Professor Jacobi of New York, who, as you all know, has by his talent, energy, zeal and enterprise contributed as much as any other man in America toward the advancement and present elevation of pediatrics in this country. He it was, who, nearly forty years ago, took the initiative in placing this important department of medicine upon the high plane which it justly merited in medical science. While his laudable endeavors have been nobly seconded and supplemented by a host of younger co-workers of equal talent, energy and zeal, and hence the names of Jacobi, Condie, Smith, Meigs, Keating, Pepper, Holt, Starr, Rotch, Chapin, Northrup, O'Dwyer, Koplik, Osler, Gibney, Love, Edwards and a host of others too numerous to mention here, but of equal ability, have become known and honored throughout the world of medicine, more especially by their efficient labors in this department. And it is pleasing to know that among these distinguished names are the authors of our most popular text-books on pediatrics. Truly, "by their fruits we shall know them." America has done well; may their good work go on.

It is very satisfactory to find that they have done about all that seems possible to be accomplished in text-books to facilitate diagnosis for instructors, students and young practitioners, by so thoroughly illustrating the phases of disease in early life by introducing numerous colored plates, photographs, tables of contrasted symptoms in similar diseases, temperature and other charts, analytic tables of blood, foods, urine, etc., together with details of clinic cases, etc., all of which prove very helpful to both teacher and student, and are in pleasing contrast to our text-books of only a few years ago.

As to the exact assistance which the new science of bacteriology and the late advance in photography are yet destined to aid us in this field, can hardly be fully estimated; but the possibilities seem very great, and what they have already accomplished seems wonderful, for from the well recognized intimate connection existing between pathology, etiology, symptomatology and diagnosis, whatever contributes essentially to the better understanding of the causes, nature and symptoms of disease must afford greater facilities in rendering exact diagnosis, and it is thus the fever thermometer, camera and microscope have served as our most valuable agents as "instruments of precision" in this matter. Nor can we ignore what applied chemistry has achieved along this line in the investigation of foods, the blood of infants, ptomains, leucomains, urinary analysis, etc., all of which are fully demonstrated in our late text-books.

Since I began the preparation of this paper at least two new works on general diagnosis have been announced as "in press." One on "Clinic Diagnosis," by Charles E. Simon of Johns Hopkins Hospital, being "Diagnosis by Microscopic and Clinic Methods," says the author, and the other, "Herrick's Handbook of Diagnosis," by James B. Herrick of Rush Medical College. As to how far they will meet the demands in this especial department will soon be apparent. Prof. J. L. Smith's publishers have also announced a new and carefully revised edition of his popular text-book on "Diseases of Children," rewritten and profusely illustrated, which will be cordially received by students and faculty. Professor Rotch has also announced a revised edition of his admirable lectures on pediatrics. His style of treating the subject and method of illustration of the text to facilitate diagnosis could hardly be surpassed. Nor must we fail to accord to the "American Text-book on Pediatrics" its full share of merited commendation for its painstaking thoroughness to meet the requirements of our students.

While the "Cyclopedia of Diseases of Children" marks a new era to pediatrics as a monument of talent and enterprise not even confined to this continent, but cosmopolitan in its research and I shall venture to assert as bearing directly upon this subject, that the chapter there on the general diagnosis of diseases of children by Professor Finlayson of Glasgow could hardly be excelled in its comprehensive and systematic details of the great general principles of diagnosis in diseases of children. I have never seen anything on the subject so comprehensive and practical.

But after all the good work that has been done and is being done to facilitate diagnosis for our young men just entering the medical profession, it remains a lamentable fact that a great many of them are very deficient in the faculty of diagnosis when put to the test on examinations for graduation, and on going before the State medical boards of examiners for certificates to practice medicine. At least I am sure this is true of our classes in Minnesota and through the West and Northwest. This results from several causes, which we are endeavoring to remedy as fast as practicable, as, 1, insufficient literary education on entering our medical schools; 2, too short course of instruction in most of our schools; 3, lack of ample facilities for clinic observation in our smaller cities; 4, text-book instruction in this particular line too voluminous for the generally limited time and means of our students.

This, then, can only be remedied by: 1, higher literary requirements in some of our schools upon entrance examinations; 2, longer and more terms of study and instruction in the same (at least four or five years of eight or nine months each); 3, as far as possible a more earnest endeavor on the part of our faculties to afford the students more ample facilities

for clinic study and observation in hospitals, dispensaries, laboratories, etc.; 4, possibly, by some good, concise text-books illustrated by copious plates, tables, etc., on the diagnosis of diseases of infants and children, where much of the best literature on the subject might be carefully revised and compiled and presented in the best possible form for the study and limited time and means of our students, only to supplement the good work which has already been done by our popular authors of text-books on pediatrics.

We, in the Northwest, are realizing more fully every year the necessity of raising our literary requirements on entrance to our medical colleges, and are doing so as fast as is practicable; both medical schools in Minneapolis having now raised their entrance requirements to a certificate of graduation from one of our best high schools, or its equivalent of other high-grade schools, and have also lengthened their curriculum from three years of six months to four years of eight months each, and hope to be able soon to go beyond this; thus emulating as fast as possible in the West the best medical schools in the East. Applauding as we do most heartily the great advances being made in such high-grade schools as Harvard, McGill and some others in the Northeast.

The advance has been gradual but continuous, from two years of four months each, and almost no recognition of pediatrics, as in the University of Louisville and many others when I began the study of medicine in 1859, to four years of eight or nine months each, as in most schools at present, and a thorough recognition of the importance of diseases of children in all, is truly gratifying; and the preliminary requirements for entrance to most of our medical schools have been advanced in like manner.

I believe much of the late advance has been stimulated by the rigid exactions of legislation in creating and regulating our State boards of medical examiners for license to practice medicine, especially in our great Northwest.

What then is the conclusion of the whole matter? I think it can readily be summarized about as follows:

The principal factors in acquiring both general and special diagnostic proficiency are: 1, time; 2, opportunity; 3, application; and inasmuch as authors and schools are coöperating to encourage as fast as possible longer terms of study, more ample opportunities, and, in every available manner, stimulating the students to more diligent application, and with ever increasing help in all directions, there does not seem to be much fallow ground to cultivate in this field. It would indeed appear that about all is being done to elevate medicine and facilitate diagnosis that can be suggested, and in conclusion will only say, that while I have thus in a desultory way endeavored to emphasize some of the features which my subject suggests, I entertain a painful apprehension that my effort has been disappointing to some of you on account of the *importance* of my theme. But if it only succeeds in provoking a discussion, here, along the lines indicated, I shall have accomplished to some extent, at least, my purpose in presenting it to you, insisting, as I beg to do, that its design has been more *retrospective* and *reminiscent* than otherwise, for it would be difficult indeed to say much new or original on a subject which has been so well developed by the greater minds of the medical profession.

In what proportion of cases in young children, *i.e.*, under 2 years, does the average physician render a correct diagnosis on first examination? Answer: Only about one-half, and in older children possibly three-quarters, while an expert may correctly diagnose four-fifths even in young children, *i.e.*, infants, on first examination and in older children nine-tenths.

DISCUSSION.

Dr. J. A. LARRABEE, Louisville, Ky.—The vital point in pediatrics turns on the diagnosis. In fact, it might be said this is to the general practitioner an opprobrium medicatoris. We all know it is in this department the greatest perplexity arises and the greatest skill and judgment is required; and even then we frequently fail to make a correct diagnosis. Too much education can not be given. And while I have all esteem for one who is accredited a peculiar genius of making instantaneous diagnoses, I believe such men very often make very grievous failures. While we differ from each other in that capacity as in others, I believe it was Michael Angelo who said, genius is only another name for hard work. I do not believe we will arrive at immediate diagnoses unless we do hard work. It is along this line great stress may be laid on educating medical men. The essayist has spoken of diagnosis, but in my mind has omitted a very important part, that is the aids to diagnosis in diatheses. It seems to me the diagnosis is greatly enhanced by the study of diathesis. There is in every one of us a weak spot by inheritance. That which would affect one would not affect another. Hence, in diagnosis we should avail ourselves of all the knowledge we can obtain. We do know, families travel on family lines, and disease is more prone to come along these lines. And by seeking along these lines we will be more likely to arrive at the diagnosis than by rambling. I invariably insist, upon the first visit, no matter what the disease may be, on the complete, careful, thorough examination of the nude body. In his advice to his students, Hippocrates said: "View the body outstretched," and that applied to adults as well as children. If we attempt a diagnosis without this, when we have not seen the patient before, we will fall into very palpable errors. How many gentlemen here have had their attention called to a rachitic condition or a case of catarrhal pneumonia, in which the child is dying not so much from the pneumonia as from the general condition? A single pustule may point the way to the disease better than anything else. Thus we are to watch closely, for every little point is a big point. The strain is such we must call in all our senses; and even then we have not quite senses enough. In closing I wish to refer to physiognomy in disease. We must study the countenance of the child and interrogate that.

DR. SAMUEL E. WOODY, Louisville, Ky.—The diagnosis in children does offer a great many difficulties not encountered in the adult. The absence of the power of speech at that tender age, the excitability of the nervous system, the perversion of the spoiled child, the fear and agitation of the nervous child, offer difficulties to be overcome only by the greatest amount of tact and patience, just the qualities in which the doctors, perhaps, are oftenest failing. And then, again, diseases run a very exaggerated course. The progress of the disease is so rapid, unless we are careful and visit the patient early, we are not apt to detect the symptoms. The history is rapid. As to the physical diagnosis being more difficult in the child than in the adult, I have not found it so. Pain sets its mark most of all upon the child. Look at the face and you can tell the sick child at a glance. I believe inspection gives you more assistance in children than in grown people. The examination of the chest offers greater assistance in the child than in the adult, especially when the child is asleep. Not only can we hear through the chest walls better, but the walls are thinner and we can palpate better. And here lately, since the employment of the Roentgen photography, we find the thinness and translucency of the tissues of the child is very important. Only

lately a photograph of a child has been published, in which the outline gave also an idea of the density of the tissues. In my clinic we got good results in the examination of rickets. The bones made scarcely a shadow, giving ocular demonstration of the diagnosis already made of rickets. I don't think, Mr. President, there is any field in the practice of medicine in which the diagnosis can be, if the proper amount of patience is used, so easy, so thorough and so satisfactory.

SEPSIS OF THE NEWBORN.

Read in the Section on Diseases of Children at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY HENRY E. TULEY, A.B., M.D.

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LOUISVILLE, KY.

The history of the following case is reported as the text for a few remarks upon sepsis in the newborn, not only because of its rarity, but because of the interest attached to the case in connection with its etiology.

Baby T. was born on February 1, 1896, of a healthy primiparous mother after a normal though rather tedious labor which had to be terminated by forceps. The child was a male weighing about seven pounds, cried well and was quite vigorous.

The mother had no vaginal discharge before labor, but a vaginal douche of 1-2,000 bichlorid of mercury was given her upon the advent of the first pain, none were given afterward. Her puerperium was perfectly normal and afebrile.

As soon as the head was born the eyes were wiped and the face was washed, the first bath being given some hours later. The cord was tied with a piece of silk from a skein which had been used the day before in an ovariotomy and some of the same was used the next day in an abdominal operation without further preparation. After the first bath the cord was dressed with talcum powder and wrapped in absorbent cotton.

During the first three days nothing abnormal was noted with the child, it had a normal temperature, nursed well though apparently not satisfied, slept well and had normal movements. On the fourth day a temperature was reported of 101.4 degrees in the morning at 6 o'clock, and it had risen to 104 degrees by noon. I was asked to see the case at this time by the attending physician, Dr. L. S. McMurtry, by whose courtesy I report it now. It was decided that the temperature was a starvation one and that artificial feeding was indicated; it was accordingly put upon cow's milk, well diluted, to supplement each nursing, temporarily, as the breasts were at this time beginning to secrete. This reduced the temperature in five hours to 100.6 degrees, and the next day the temperature was normal and the child seemed as well as usual. The cord dropped the next day, the fifth, leaving a moist base, which was treated aseptically and dressed with talcum powder. The next day the temperature rose to 102.4 degrees and the child was reported as listless and slow about nursing. I was asked to see the child again, at this time and on close examination found a retracted umbilicus which, on depressing the edges, was found to contain about twenty drops of pus, this when wiped away showed the base or stump of the cord to be fungous in character. The child did not stand manipulation of the parts well, pain being caused when they were cleansed, and there was noted slight distention of the abdomen. After thorough cleansing of the navel with a bichlorid of mercury solution, the fungous navel was touched with a twenty grain to the ounce solution of nitrate of silver and a powdered boracic acid dressing applied. This dressing was renewed twice daily and the silver solution used as before.

The progress of the patient from this time to its death, three days later, is of no particular interest save that the temperature rose continuously and steadily from an initial one of 102.4 to 107 degrees a few hours before its death. Baths would reduce this a degree or so, but it would rise again in a few hours. It refused to nurse and was with difficulty fed breast milk, which had been pressed out for feeding with a medicine dropper. The day before its death it had passed very little urine and had several movements, which were composed almost entirely of mucus. The bowels were irrigated with plain water which regulated this condition to a degree and also increased the amount of urine voided. On the day it died the skin was very hot and dry and it was put in a hot air bath, but this caused so much prostration that it was removed and stimulation kept up to the time of its death. A few hours before this occurred its hands and feet were noticed to become a purplish color, perfectly cold and this condition had extended to the wrists and nearly to the knees before death. The abdomen was much distended and tender, the navel moist and the granulation tissue covered with pus, though none could be forced from the vessels by pressure upon the abdominal wall.

This case is of particular interest because of the following facts: The child was born of a healthy mother who had been in the hospital under the daily observation of the physician and nurses for nearly one month before her confinement; the labor occurred under the most carefully prepared aseptic surroundings, in a hospital where a great deal of abdominal surgery is done and no deaths had occurred in more than a year, and that one in another part of the building; it was the first case of obstetrics which had ever been at the hospital; the mother had a perfectly normal and uneventful convalescene and had no vaginal discharge before labor; the patient had an experienced trained nurse, on special duty, in charge and more than the usual care was taken with the dressing of the cord, careful bathing and talcum powder being used. The question has arisen "Where did the infection come from which caused this child's death?" That it occurred through the navel there can be no doubt.

The literature of sepsis of the newborn is very meagre but a number of cases have been reported. The following routes for infection have been mentioned. The umbilical cord and its stump are the most frequent points of infection; among others mentioned by Brothers are the following: Accidental injuries or operations with unclean instruments; mammary abscess; tongue tie or circumcision; abrasions of the buccal mucous membrane, or slight injuries to the genitals or anus; septicemia of the mother during intra-uterine life; premature rupture of the membranes, putrefaction of the liquor amnii and aspiration of this by the child, causing a septic pneumonia; a violent vaginitis of the mother acquired during the last weeks of pregnancy with premature rupture of the membranes, and septic poisons trans-

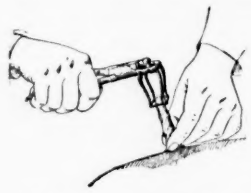
mitted from the mother, by means of her milk, when she has septicemia following labor.

Jacobi mentions the gastro-intestinal tract as a frequent site for infection, but in his writings, decidedly more prominence is given the umbilicus and its care as a means of prevention of sepsis. The pus of an ophthalmo-blennorrhea or the decomposing lochial discharge, he also mentions as causes.

In the case reported all of these sources of infection can be eliminated save the umbilicus. There were no operations done upon the child, the buccal mucous membrane was normal, the mother at no time had symptoms of sepsis, a vaginitis, or decomposing lochial discharge, and frequent examination of the lungs of the child failed to reveal any lesion.

The time of infection in the case can not be decided, but that it did not occur at the time of tying the cord and its first dressing is certain. There was no septic condition existing in the cord before it separated, as it mummified rapidly and was perfectly dry throughout after the separation. It most likely occurred after it became detached, through the fungous navel left, though extra precautions were taken in its care. A possible cause, perhaps, was by septic matter being carried through a wet napkin by capillarity, from the alvine evacuations. It is a common complaint of nurses that boy babies are with much more difficulty kept dry, on account of the napkins being wet high up, thus soiling the bands and cord dressings.

It does seem queer, however, that sepsis should



have existed in this case, in which every attention was paid to the details of asepsis and antisepsis in the lying-in-room, especially so when we think how common it is for no dressing to be applied to the cords of children of the poorer classes, or if one is applied it consists of a greased cloth, after which gangrene is the more apt to occur, or simply a rag with a hole burned in it, with ashes or soot as the drying powder.

However, the occurrence of sepsis in one case, where every care has been taken to prevent it, should not encourage us to relax our vigilence in preventive treatment. The treatment is still mainly preventive, and in the majority of cases, sepsis can be prevented. In a series of 222 cases at the Sloane Maternity Hospital, New York, personally seen by the writer, no case of sepsis in the newborn occurred and no trouble with the navel. The possibility of its occurrence, however, should always be kept before us, careful sterilization of ligatures and instruments used in severing the cord should be had, as well as of the hands before this is done. The ideal ligature is the rubber one, and the difficulty has always been in obtaining a method of applying, but in the ingenious instrument devised by Dr. A. C. Kellogg, which I take pleasure in exhibiting, with which a small rubber ring is applied to the cord, all danger of sepsis from the primary ligature is obviated because of its ready sterilization, and hemorrhage simply can not occur.

The after-care of the cord is important, there should be a separate bed for mother and child, careful cleansing of the hands before bathing the child, which should always be done before the mother is attended to, the avoidance of fatty applications to the cord and the use of drying powders to facilitate the mummification, a very good formula being salicylic acid and pulverized starch, one part to eight.

The care of the cord is of less importance than the care of the stump; every detail in the treatment of any surgical wound should be observed here. Should there develop an omphalitis, gangrene of the umbilicus, an arteritis or phlebitis, the most active stimulation is indicated with prompt attention to the proper cleansing and antiseptic treatment of the stump, the only precaution being the avoidance of carbolic acid as an application. The symptoms of them all are more or less similar, local appearance of the inflammation at the umbilicus, it being generally bathed in pus; peritonitis is always present to a greater or less degree, also pain and tenderness especially during the bath, and a septic temperature.

However, there may be no symptoms, the condition being recognized only at the autopsy table.

111 West Kentucky Street.

DISCUSSION.

Dr. J. A. WORK, Elkhart, Ind.—What substance do you use on the cord as dressing? Answer: Cotton.

Dr. W. B. PARKS, Atlanta—I would like to ask the Doctor if it would not be well, in the large cords, to make a little massage and lessen the size of the cord before severing it. That can be done without any injury, I think, if you dress the cord near the child and manipulate outward. By a little compression in this way, you can lessen the edematous condition. I have done that myself quite successfully in a few cases. I never like to tie these large cords for fear of there being too much to be absorbed.

Dr. A. C. COTTON, Chairman—The advantage claimed for the rubber is its constant elasticity gradually displacing the Wharton's jelly.

Dr. HATCH—I have never lost a child under those conditions in my entire practice. It has been my practice during the last ten years, not to sever the cord until the placenta is born, and since I have adopted this method have had better success with the children and they get along better. I do that uniformly and so far as having sepsis is concerned I have for a great number of years used thoroughly sterilized silk in tying the cord. I can see the advantage of this band. Last spring I tied one of those large cords and thought I had tied it thoroughly, and imagine my surprise when a few hours afterward I was sent for and it was said the baby was bleeding to death. I can readily see the constant pressure of the elastic band would have adapted itself to the cord as the edema diminished. The hemorrhage in this case was due to the edema leaving the cord, allowing the ligature to slip off.

Dr. GRAY—I have been in the habit of doubling a small rubber band three or four times and slipping it over the cord. I have done that several times when there was considerable jelly of Wharton, with good results.

Dr. J. H. ROSS—In the country where I practice, I think it is the custom to use almost any substance at hand for ligature. I prescribe flax or cotton thread. But I invariably ligate the cord before I cut it off, and it occurs to me now that perhaps the chances of infection would be lessened by the ligation being made before the cutting is done. We have not been using, in country districts, antisepsis about the cord and I do not remember a single adverse occurrence in the history of many hundreds of cases.

Dr. A. C. COTTON, Chicago—Well, we have tied the cord with almost everything. I have tied it with shoestring and with a hair string from the head of the woman a good many

years ago, and no ill results ever followed it. The only case I have ever had of infection from the navel was long after I had been connected with a hospital and had been taught surgical asepsis and practiced it. In my experience and observation sepsis from the navel is a rare thing in our city, and midwives take no aseptic precaution at all in many instances. That it should follow in the practice of men who observe aseptic precautions religiously and not occur in the practice of people who do not know the meaning of the word "asepsis" is a mystery to me. The discharges ascending the napkin by capillary attraction, is an argument that has been used by myself, as those will remember who heard me at Baltimore and the Illinois State Medical Society last year. I have substituted an absorptive pad, making the diaper simply a key bandage to hold the pad in place, the pad being made of such material as to absorb readily, so the outer retention band is not wet at all.

Dr. HENRY TULEY, Louisville, Ky.—In the case I have just related the enlarged cord extended fully five inches directly from the navel of the child and it would have been impossible to strip this so as to get a good place to tie the ligature. That case was used as an argument for the rubber ring. In the series of 272 cases there were some twenty or thirty cords which bled secondarily, after the tying of the ligature. In some very fat cords hemorrhage would occur. I think this case stands as a unique one and one which I can not fully explain as to the cause of infection. Every precaution possible was taken with the case, because it was a patient recommended to Dr. McMurtry by a friend in Glasgow, and under that recommendation it was with the greatest care the case was watched. Without any further preparation the Doctor used the ligatures the next day in an abdominal operation. But still that possible cause of infection should not be forgotten. I think it does sometimes occur in that way. I was approached last year by a prominent professor in one of our colleges in Louisville and he said: "What are you going to say about the umbilical cord?" I detailed to him the case I suggested. He said: "That is all a mistake. Just recommend it be left alone entirely; just turn it loose and it will take care of itself." To my personal knowledge this professor has had several deaths in the newborn, and I think if he would examine them carefully, get an autopsy, he would find the cause to be sepsis. We know sepsis occurs most frequently from the navel.

CHOREA.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY HENRY HATCH, M.D.

QUINCY, ILL.

In discussing the subject of chorea I am well aware that it may, at first thought, seem a dry subject to you. But in bringing up this subject it is that I may awaken new life, and bring forth new ideas, and thereby get a more tangible and satisfactory understanding of the etiology and pathology of this very troublesome disease. Troublesome, not alone to the patient and friends, but troublesome as well to the physician, on account of the tenacity with which it holds to its victim. No disease causes more anxiety than this disease, chorea, for it is often hard to convince an anxious mother, when her child is never still on account of the violent nervous movements and excessive agitations, that it is not very ill, and that you do not expect a serious outcome.

To launch out in a new channel may cause you to exclaim, mentally, "Another needless exploring expedition setting out on the pathless sea of chorea," with no definite port in view, and with an uncertainty regarding the existence of such a haven.

Chorea has been and is one of the pathologic dumping grounds of the medical world; and many a man has spent tireless hours in medical research, to find a remedy which will relieve this troublesome disorder. In this space the theorist throws his theory; the pathologist his odds and ends; the moralist adds a few of his trite sayings; and as a result there is a stupendous wilderness of unknown depth and uncertain quantity. No one has penetrated successfully this wilderness; many have tried, and if no other good has been done, the ground has been almost covered with their failures; so that before long we will be able to traverse the entire field by passing from one failure to another. Each man can go a little farther than his predecessor, by using as stepping stones the perished efforts of those who have gone before.

The term chorea, coming from the Greek word, chorea, meaning a dance, has been handed down from the middle ages. About the fifteenth century England was overrun with dancing, or shaking fanatics; many of whom were sent to prison, as having the devil within them. People of seemingly deep religious desires and tendencies were afflicted, for they looked upon it as an affliction and a direct visitation for sins, with an unaccountable dancing, jerking, shaking, or muscle tremor of some sort; this was purely psychic. During the fifteenth century the city of Strasburg had so much of the trouble that the magistrates ordered the afflicted ones to the chapel of Saint Vitus, to do penance, and to pray for relief. Here is where the term "St. Vitus dance" probably originated. It may be of interest to us that St. Vitus was a Sicilian, and a pupil of St. Modestus; both suffering martyrdom as Christians under the persecutions of Diocletian, in the year three hundred, thus gaining their canonization. St. Vitus, however, does not hold the undisputed claim to the name of the disease, for in other parts of Europe it is known as "St. Modestus' dance," "St. John's dance" and "St. Anthony's dance." Each saint was supposed to have curative measures in his keeping. Many other terms have, at various times, been applied to it. One old author speaks of it as melancholia saltans, saltare meaning "to dance." Another as paralysis vacillans. Another as ballismus, from the word signifying "to leap." Again it is known as epilepsia saltatoria; as orchestromania, or the dancing madness. These terms all relate to the psychic disturbances of hysteric character.

Chorea proper, or Sydenham's chorea, is the disease as we recognize it to-day; while the Germans make two classes of it—chorea minor (our chorea) and chorea magna, hysteric manifestations, some of which simulate true chorea.

The disease is preëminently one of early life. Dr. Stephen Mackenzie has a record of 439 cases, with the following percentages: Thirty-four per cent. developed between the ages of 5 and 10 years; forty-three per cent. between 10 and 15; sixteen per cent. between 15 and 20 years; with the largest general percentage for the thirteenth year. Sée reports 513 cases, and 453 of them between the ages of 6 and 15. Sinkler 282 cases, with 217 of them between 6 and 15 years of age. There is on record one case in a patient 78 years old. My own experience gives me a record of forty-six cases, the oldest of which was 40 years, and a man. Most of my cases have been before the period of the seventeenth year; and almost all of them have been females. The records of the same authors show that chorea, while a disease of early life, is most frequently a disease of early female life, as my own experience has shown. It follows closely, or closely precedes the puberal epoch in the girl. Gower, who has made a deep study of the subject and who has a record of more than one thousand cases, gives but 365 cases found in the male. Sachs, with his list of seventy cases, found twenty-one males. It may be the more

finely balanced nervous organization of the girl, brought up as she is, more of a hot-house plant than her brother, leading a sedentary life and under very artificial surroundings, forced to exert a growing and naturally irritable nervous system by close application to books and music, this, I say, may account for the preponderance of the statistics for the female.

Chorea is one link of the chain of hereditary troubles. It is the experience of many authors, and has been the result of my own observation, that alcoholism is a very prominent factor in the production of chorea. Especially so when a woman becomes impregnated by her husband when in a drunken debauch. Morphinism and pulmonary tuberculosis, by transmitting vitiated constitutions, are also prime factors in the production of this disease. Epilepsy or migraine is frequently found in the parent of a choreic child. We can not say, properly speaking, that chorea is inherited; but we can say that either its vitiated constitution is inherited from a parentage which is not healthy or that it has a choreic tendency. These are hereditary land-marks: The diminished vigor, the inactive cell structure, the nucleus and nucleolus burdened with inanition are tissues prematurely old. And how often have we seen children born that are young in years, but carrying the prematurely old constitution! It is a disease that believes the old adage that "Blood is thicker than water." Arising perhaps from one ancestor, say a maternal grandmother, who may have had a clear history so far as ascertained, it manifests itself in one or more members of the family, usually choosing the one whose nervous organization most closely resembles that of the ancestor, a lasting heritage from generation to generation.

It is not necessarily a racial affection. While some writers claim exemption for the American Indian, their claims are not substantiated; and we must admit that chorea is like the rain from heaven, falling upon the Jew and the Gentile, the just and the unjust, the rich and the poor. Weir Mitchell claims relative immunity for the Negro race, and so far as my personal experience goes, having come in contact more or less with the Negro race, both in hospital and private practice, I have never seen a Negro afflicted with this disease, or anything which had a semblance to it; but Sinkler reports several cases among the colored people. While both the Negro and the Indian have been subject to a tremendous strain for generations, it has been a physical rather than a nervous or mental strain. And it is usually people of the higher and more sensitive nervous organizations that have this disease among them. What is not conducive to the production of this disease is the fact that the Indian and the Negro live a rugged, out-door life. Climate and climatic influences can not be said to give much light upon the subject. Season of the year is also an obscure factor, if a factor at all. Rainy, oppressive days are more favorable to the development of the disease than bright, sunshiny ones, if there is already a predisposition toward the disease. It has been my experience that most of my cases have come to me in the latter part of the winter. Most of them have been school children, and I could often understand why they were afflicted with the disease. They were the offspring of parents of a highly nervous organization, who were anxious that their children should appear well in public, and many of them had instilled into the minds of their children the idea that they must be at the head of their classes. Take into consideration our modern system of forced education among children; the child must go to dancing school, take music, have five or six studies, and then they all have their little parties, keeping them out late at night. Is it any wonder that many of these poor children succumb under the burdens their parents press upon them? Even children are subject to blues, and disagreeable days are bad for that ailment. I have not forgotten my own many despondent and blue days when I was a child, when things did not go right. All are too prone to forget that we were once children ourselves, and are therefore not apt to give children enough sympathy in their little troubles.

According to authorities which I have looked over, March gives the highest monthly percentage of cases; and this corroborates my own observation. The greatest number of cases in a given locality will arise at the season in which the greatest mental or nervous strain is put upon the children, and in our present system of civilization the spring months, when the child is anticipating its final examination, is usually the period when it has the greatest strain.

Concerning the true etiology of this disease there are many theories. The ancients believed that the afflicted person had a devil, and efforts were put forth to exorcise the malignant spirit. They made vows, did penance, went on pilgrimages, and were doubtless benefited in so much as may arise from a fashionable method of treatment, of to-day, known as suggestion. These pilgrimages also were beneficial in themselves, from the fact that the people who made them got more out-door exercise; consequently more fresh air and less nervous tension.

The definition given of this disease by Sydenham in 1686 is very interesting: "St. Vitus dance is a sort of convulsion which takes boys and girls from the tenth year until they have done growing. At first it shows itself in a shaking or unsteady movement of one of the legs, which the patient drags. Then it is seen in the hand of the same side, which the patient can not keep a moment in its place, when it lies upon its breast or any part of his body. If any vessel filled with drink be put in his hand, before it reaches his mouth he will exhibit a thousand gesticulations like a mountebank, and on this account, if he is associated with other children, he becomes the mark of derision, which is always detrimental to his condition. He may hold the cup out straight, as if to move it to his mouth, but has his hand carried elsewhere by sudden jerks. Then perhaps he contrives to bring it to his mouth. If so, he will drink the liquor off at a gulp, just as if he were trying to amuse the spectators by his antics, or was afraid he would not get the water, or fluid, if he did not drink it hastily. Now this affliction arises from some humor, falling on the nerves, and such irritation causes the spasm."

Not an entirely lucid definition, but with all the wealth of medical knowledge gathered from then until now, we are forced to confess it is about as good as the one of to-day. It was said in the history of the disease that many causes were assigned for chorea. Age, sex, race, seasons, contagion by imitation, no doubt have each some effect on the origin of the affliction. Sinkler reports a case in which a trauma seemed to be the cause. Others attribute the development of the disease to some reflex irritation, phymosis, intestinal parasites, pharyngitis, eczema, urti-

caria, eye-strain, menstrual changes, etc. While it can not be definitely said that any one of these is the cause of chorea, it is self-evident that any one of them may place the little patient in a more favorable condition for its development. Many authorities attribute the eye symptoms to chorea, and not chorea to the eye-strain. There is, however, a disease with which chorea goes hand in hand—arthritis. One might say that the excessive motions which we find in chorea could be the cause of this condition. One author says that in five cases of arthritis you will find one case of chorea. It has either been my fortune or misfortune not to have this complication to any great extent. The same author says in five cases of chorea you will see three of rheumatism. One cause of the rheumatic disorder is the fact that it is difficult to keep choreic patients in suitable surroundings, on account of their nervous agitation. Copeland, an English writer, says, too, that the rheumatism when associated with chorea, has a marked tendency to leave the joints and extremities and to attack fibroserous membranes, as the pericardium and cerebrospinal envelopes. Another author (Rogers) goes so far as to declare that it is his belief that articular rheumatism, endocarditis and chorea are simply three phases of one and the same disease, while Osler states emphatically that there is no known disease in which endocarditis is found so constantly, postmortem, as chorea.

I do not think it is fair, when we make a postmortem of a patient and find endocarditis, pericarditis, or any other "itis" in a patient who has had chorea to say that death was the result of the latter disease. Is it not better to say that on account of deficient vitality or a vitiated constitution, the child became a victim of chorea, which so debilitated the constitution that it became an easy prey to the more severe disease, endocarditis or pericarditis, etc., and that death, instead of being the result of chorea, was produced by a disease, or diseases that follow in its train, as the indirect result of the deficient vitality or vitiated constitution. On the other hand, it is usually acknowledged that where both arthritis and chorea are present the arthritic symptoms appear first. Hirst says there is a common toxic product, which if it affects the cortex, produces chorea. How Hirst has been able to ascertain this I do not know, because it is seldom, and I believe never, the case where a postmortem has been made, that the patient has died from plain, uncomplicated chorea. Hirst further says if it turn its attention to the joint surfaces, there is a rheumatism. This theory presupposes a locus minoris resistentiæ. Sachs believes that in 33 per cent. of cases either endocarditis or myocarditis precedes the chorea, and in about the same proportion of cases is found an organic lesion, usually a mitral systolic, while in a great proportion of the cases is heard an anemic murmur, which usually disappears with the chorea.

Among the causes assigned for chorea is pregnancy of the early months, and a pregnant woman who has had a previous attack is especially liable to a recurrence at this period. On the other hand, I have seen women who had attacks of chorea very much benefited by pregnancy and the resultant childbirth. Among other cases may be mentioned the exanthemata and anemia. Anemia is found in all cases of chorea, which clearly shows mal-nutrition. But it is rational to think that the anemia is merely a step in the causal relation, and not an original factor. Anemia may be called a reasonable factor in many cases, for if a child is well nourished with good, healthy, rich blood, I believe it is impossible for it to have chorea. Chorea has also been observed to follow the toxic use of many medicinal preparations; notably the poisoning which some times follows the use of iodoform. This is brought about by the fact that drugs of this character have to bear on the red corpuscular element of the blood.

Chorea has been observed as an intercurrent with nearly all the more common diseases.

Even more intricate and diappointing than the etiology of the disease, is the pathology. One unfortunate circumstance in the state of the pathology of this disease is the fact that it is very doubtful and improbable that any case of simple, uncomplicated chorea ever died, and so-called cases of choreic death have not been produced by the chorea proper, but by some complication.

Chorea, like hysteria (to which I believe it is closly related), in the first stages is assigned to want of nervous equilibrium due to diminished nutrition, which results in nervous congestion, brought on by overwork or excitability. And if we could always have the cases in this first stage, I believe all could be guarded against complications, and be cured.

The varied pathologic conditions reported as found in choreic patients, and given as causes for chorea, or results of chorea, form a public confession of our ignorance regarding the subject. Its microbe has been earnestly sought for, but the search has produced nothing but disappointment. Pianese and Dana each declares that he has discovered the bacillus, which when cultivated gives ptomains, and the injection of this substances causes chorea. Pianese substantiates his claim to some extent, but his microbe is not yet accepted. The staphylococcus pyogenes aureus is frequently found in the endocarditic vegetations of the choreic patient, and in one instance has been found in the blood. That there is a microbe scarcely admits a doubt, as the endocarditis, pericarditis, arthritis, and sometimes septic thrombi, peritonitis, pleurisy, pneumonia and other afflictions, diseases due to direct microbic infection, or to the absorption of ptomains, clearly prove, for these diseases are the comites of chorea. Postmortem pathology in chorea shows that this chorea microbe, or microbes (for there may be two or more varieties working in harmony, as may be seen in combined scarlet fever and diphtheria, and in this way account for the frequency of the intercurrent afflictions) gives its attention to the structures of the nervous system, and here the pathologic conditions are so varied and so numerous, that it is difficult to select the one for which the chorea is responsible, and find the one due to some intercurrent disease. Hence there have been found hemorrhagic infracts in the lenticular nucleus, cerebral hyperemia and edema, and the same condition in the cord; vacuolization of the nerve cells and nerve trunks as in syringomyelia and hydromyelia; hyalin degeneration of cells in cortex and basal ganglia, the motor cells; hyperplasia of neuroglia, the expected result in chronic chorea, and a condition which remains after recovery from the disease. Starr thinks that where mental symptoms predominate, the cortex is the seat of the degenerative process, and that when the symptoms are chiefly muscular that the lesion is cerebral. There has also been found an evident prolifera-

tion of cellular elements of the cord into the adventitia of the blood vessels supplying that structure, or pathologic karyokinesis. It is of interest to note that the favorite seat of the pathologic lesion is in the corpora striata.

In comparison with the definition of Sydenham let me give a modern one; that of Dickenson. "An unnatural hyperemia of the nerve centers, not due to any mechanical exertions, but produced by causes, mainly of two kinds: One, a morbid influence which may affect the nerve centers, as it affects their organs and tissues. The other condition is usually mental, but sometimes what is called reflex, which especially belongs to, and disturbs the nervous system, and affects persons differently, according to the inherited morbidity of their natures."

Having discussed the natural history, etiology and pathology of chorea in a rather hasty manner, we now come to the treatment; and in my opinion every case of pure chorea should be cured; and especially so if we can have fairly good surroundings, with fairly sensible people to take care of the patient. It does not require wealth nor any great ability for the nursing of this class of patients, but it does require a good physician, who thoroughly understands the special constitutional condition of his patient, and understands the results and the action that he may obtain from the drugs which he will use. First the patient with chorea ought not to be excited by much company; and if it is a child it should not be associated with other children, from the fact that children, seeing the constant nervous, and apparently senseless movements, of their companion are very apt to laugh and make fun of him, or her, and consequently destroy what little confidence the patient may have in its ability to control its movements. The patient should be kept clean; should be frequently bathed; well rubbed after each bath, and be placed with cheerful, happy people. His surroundings and companions should be restful. If it is an exceedingly bad case the patient should be kept in bed as much as possible; and if the motions are violent to the extent that he bruises himself, it is also well to put on a jacket by which you can fasten his hands. Massage treatment is very beneficial in these cases. If the child is anemic he should have iron. If he is poorly nourished, and does not eat enough food, he should have cod-liver oil. If he comes from syphilitic or tubercular parentage, his treatment should be directed to these peculiar points. All sorts of remedies have been recommended for the treatment of this disease (Shoemaker forty-seven, Bartholow seventeen). Arsenic, zinc compounds, cimicifuga, antipyrin, chloral, sulphur, quinin in large doses, opium, digitalis, and I might mention a host of other remedies, but it is unnecessary. Then as toward treatment during the changes in action: If in pain, plasters. In endocarditis, potassium chlorid. Now all these remedies may be well in their places, but there is one remedy upon which I place my greatest faith, and that is strychnin. I have given it so much that I have come to look upon this drug as a specific in the treatment of this disease; and no matter what complications I may find, I treat each complication and hold fast to my strychnin. I give it about every four hours, beginning with the one hundred and twentieth of a grain, and gradually reaching one-sixth, and then continue it for an indefinite period, or until my patient gets well. In connection with that I give digitalis, or iron, or cod-liver oil, or salsoda where indicated; and if my patient is very restless, and he needs rest I give chloral, potassium bromid, morphin and sulfonal, as I think best for each special patient.

And now as to the prognosis of this disease: I believe that every case of pure chorea should, and can, be cured. If you will study the peculiarity of your patient, and follow the remedies as indicated in this paper, if you can control the parents, you can absolutely say when a case of chorea is brought to you, that it will surely be cured.

MAN'S BRAIN AND MIND.

THE FORMER SOMETIMES INSANE, THE LATTER NEVER.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY G. W. DRAKE, M.D.

CHATTANOOGA, TENN.

Man's brain is the storage battery of energy, the seat of consciousness and the organ of the mind. From it are transmitted by nerve fibers, energy for the functional activity of all organs and the vital metabolism of all tissue cells. In it are localized areas for the reception of energy and the perception of sensations.

A sane brain is one in which all its cells and cell derivatives, fibers and other material substances are in a normal condition chemically, physically and vitally.

Chemic analysis of the different parts of the brain is not alone sufficient to enable the neurologist to judge of its sanity, nor is a microscopic examination adequate. Because neither will reveal the relative position of molecules in a cell, or atoms in a molecule, upon which in my opinion the normal function of the parts depends, as also the kind, number and shape of the molecules, together with their atomic structure. When the cerebral centers are in a normal condition, the brain is sane, otherwise it is insane. When the dominating brain centers which supply functional energy to the various organs and tissues of the body are not perfectly sane there can not be perfect function. None of these centers are in a condition of perfect sanity and there is no organ or tissue that is perfectly healthy in function. The consequence is that the period of activity of every tissue is limited and it can not exist perpetually. It must sooner or later cease to manifest life, dissolve into its original elements and return to the dominion of chemic energy, as the dust of the earth. This is the common lot of all vital tissues. The source of their vital energy is finite, and they are consequently doomed to inevitable exhaustion.

Passing from the involuntary centers of the brain we come to consider the centers of conscious sensation, the habitat of consciousness.

Man is a triune being, consisting of a material, a sensible and an intellectual ego. These parts are usually denominated, body, spirit and mind. Contrary to the doctrine of the scientific Christian and that of the christian scientist, I do not believe in the existence of mental diseases, nor diseases of the sensible ego. Disease, I believe to be a disarrangement of the normal arrangement of matter in the structure of one or more cells of the body. The gravity of the symptoms depends on the locality and the number of the cells affected. So-called "functional diseases" all have a material cause, whether the physician can

find it or not. So long as the material structure is normal the functional activity will be normal. The sensible ego, or consciousness, is always ready to exercise its faculties in the various brain centers of sensation where it is situated, viz., those of hearing, feeling, tasting, seeing and smelling. The peripheral and central organs of the five senses must be in health in order that the sensations may become conscious of normal impressions. All the cerebral centers of the special senses are more or less insane, and there does not exist perfect vision, perfect hearing or perfection of any of the sensations. Everybody is color blind to a degree, and there is a degree of imperfection in all the senses, owing to material disturbances. There is a material basis for every pain and every subjective symptom of disease or discomfort. The sooner physicians recognize this fact and bring to bear their materia medica on all material disturbances, the better for the patient. Let not christian science, spiritualism, faith cure and other kindred humbugs lead astray the grand old profession of scientific medicine. The best brains of our best doctors are to be relied on as bulwarks of defense against the cunning novelties which are attempted to be introduced into therapeutics. Suggestion and hypnotism as therapeutic agents can be effective only as the material structures, the seat of the diseases, are responsive to their action. Imaginary diseases are real material images and should be treated as such. The intelligent physician should search diligently for the concealed picture before attempting to efface it. Therapeusis based on mistaken diagnosis may lead to disastrous results. It is possible thus to make a diseased image where one did not previously exist. Insanity of the intellectual centers of the brain is the form usually denominated mental insanity, and its subjective symptomatology can be learned by studying that of the so-called "mental diseases." The function of these centers is to manifest the faculties of the mind, and it is essential that they be in perfect order to make a perfect reflex of mental action. Any derangement of matter or departure from the normal standard more or less unfits these organs of the mind for their physiologic work. Every case of insanity should be carefully studied etiologically, with the view of cerebral localization of the seat of diseased tissue. After the discovery of the part affected, a rational materia medical course of treatment should be instituted in conjunction with suitable hygienic environment. Disarranged brain substance in the intellectual centers can not make a correct manifestation of the faculties of the mind. Brain culture as a physical science has not hitherto received the attention which its importance demands. The cerebral centers for special senses, together with those for the higher faculties of the mind should be duly exercised for the purpose of enhancing their capacity. By systematic physical culture of these centers the equilibrium of the brain may be maintained, and in this way insanity be prevented in many cases. Brain sanitation is conducive to sanity, and I may here interject that watering the brain copiously is a measure of great hygienic value as well as an essential therapeutic procedure. Water the sick of all diseases, but especially those sick of insanity.

I pass to a brief consideration of man's mind. This is the the terra incognita of the anatomist and will ever continue so, for it's not of the earth, earthy. Mind is a general entity, specialized in man and individualized in a particular man. Man's mind is the first person of the human "trinity," and is made in the likeness of the first person of the divine trinity. It is the supervisor and supreme director of the material man. The brain is its organ, but its habitat is unknown. It may dwell in some localized area or it may be ubiquitous. The minds of all men I believe to be equal, but there is great diversity in the structures of the brains or mind organs of different individuals. The mind of the fool or idiot is equal to that of the most brilliant philosopher. The mind of the newborn babe is equal to that of the full-grown adult. There is, however, a marked difference in the manifestations of mental action in different classes of human beings, owing to the difference in the material composition of their brain centers. These brain centers may be cultivated and developed by use. They may be brought nearer and nearer to perfection and become better organs of the perfect mind. The mind does not develop or deteriorate. The nearer the mental cerebral centers approach perfection, the grander their manifestations of the conceptions of the mind. The farther they fall below the normal standard the feebler they portray the mental faculties and the more imbecile their individual possessors. Great thinkers are all men, young and old, ignorant and educated, sane and insane or idiots, but great also is the difference of the brain impression of their thoughts.

The mind is never insane. It belongs to that class of imponderable agents or energies which was created perfect in the beginning. It requires a certain adjustment of matter for its manifestation, and the better this adjustment the better the manifestation.

There can be no change in the mind, but only in its mode of action through a change in the cerebral apparatus. Defective machinery makes imperfect movement however perfect the motive power. Electricity is the same, whether it turns a simple wheel or is applied by suitable adjustment to the most complicated mechanical contrivance. It is no more and no less electricity whether it runs the street car or the wheel of the fanning machine. It never gets out of order and never needs repair. So with the mind, its brain machine may break down and need adjusting, but the mind can not be injured by traumatism, autointoxication or bacterial toxins. It can not be pierced by the bullet or cut in twain by the knife; it fears no evil from without; its only concern is for its fellow entity, the body, from which it must sooner or later be separated. The body will crumble away and return to the dust as it *was* and the spirit to "God who gave it," but the mind will roam about in the unseen universe and wait for the resurrection of the body. After the resurrection, the mind will preside over a perfect body and spirit, and redeemed man will be a perfect triune being in the image of the Triune God. *Cerebrum sanum in corpore sano* is all that is needed to complete the perfect man. The *mens sana* needs not a physician. Brain culture should constitute a prominent department of physical culture. Brain development should not be neglected in the present craze for muscle training. A systematic curriculum of exercises should be arranged for training every sense organ with reference to its better education. The courses in music, painting, sculpture, etc., should be studied with reference to their importance in brain culture. Every sound, every picture, every form, every muscular movement makes its image on the brain and contributes to its development. The brain is the highest organ of the body in position and

importance. In it mind, spirit and matter meet to form the triune man in the image of the Triune God. There is no difference in the members of the human family, Hottentot, Mongolian or European, as to their minds, the difference is only in the structure of their brains. After death and the resurrection all the redeemed of Adam's race will be equal.

Often on the thoroughfares of crowded cities, in the parlors of the devotees of fashion, in the offices of money dealers and in the haunts of the busy fortune hunters, I have tried to imagine the appearance of the brain structures of the different types of the *homo genus* and compare one with another. Shape of head, contour of face and form of features furnish a slight index to the hidden form and individual structure of the brain. The behavior of the individual is the best criterion of the sanity or insanity of his mind organ. The conduct of every individual must be compared with that of the highest type of man and his brain can be graded thereby with accurate precision.

Faces may deceive, pomp of wealth or foible of fashion may conceal, but truth will out and show by character the inwardness of the brain. The brainiest men are those whose habits of life are nearest perfection. The world is full of deformed brains.

A NOTE ON THE PATHOMENTAL EFFECTS OF DEGENERATIVE HABIT.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-Seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5–8, 1896.

BY H. S. DRAYTON, M.D., LL.B.

NEW YORK.

In his play, "Two Gentlemen of Verona," Shakespeare makes Valentine say—

"How use doth breed a habit in a man."

In this remark we have an expression of psychological truth, that three centuries of later observation has not been able to gainsay. The disciples of heredity have availed themselves of the apparent effects of habit impression in formulating their creed, employing them as evidence of a double meaning, especially if they were of a degenerate nature. "Evidence here," they would say, "of congenital predisposition, to think and act in lines that enfeeble mind and pervert body." The pessimistic speculations of a Schopenhauer or a Nordau may echo the opinions of medieval prophets of a fate-bound destiny, and find a hearing in a certain class, but the cheerful, sunlit view of a better future for him who seeks it earnestly is finding a larger recognition among the sober and thoughtful year by year. In the field of anthropology there does not appear that tenacious insistence upon the preëminent influence of heredity that characterized the discussions of ten years ago. Manouvrier, Brouardel, Magnan, and others of authority refuse to admit the existence of any distinctive type of nervous organism for the vice-bound and criminal, and contend that it is not so much the inheritance of a disposition toward conduct of an irregular, vicious nature as it is the social relation into which one is born or in which he lives, *le milieu*, that should receive consideration, when we commence to trace the etiology of moral perversion and crime. In the Paris Congress of 1889 M. Manouvrier argued with great force upon the principle that the commission of acts in violation of law did not demonstrate a morbid type of constitution but rather a certain caste of temperament and unfortunate surroundings.

Dr. Henry Maudsley, once a pronounced apostle of heredity of the severer class, said lately in answer to the question. "Is a man hopelessly chained down by the weight of his inheritance?" "By no means, for there is something else besides inheritance that makes fate, and that is education. It is a physiologic law that the brain throughout infancy, childhood and youth grows to the circumstances with which it is placed, and therefore the actual development of a brain may be as much influenced by the kind of nutriment supplied to it as long as it grows."

The verdict of psychology is substantially in keeping with that of physiology. Sully, for example, in "Handbook of Psychology," writes: "In the present state of knowledge heredity only helps to account for comparatively few among the host of peculiarities that go to make up the natural phases of individual character. . . . External influences cause variations. No two are subject to the same influences. The school, the circle of friends, the business, etc., differentiate minds. The body takes on a form of growth because of the special line of habit in eating, exercising, etc., of the individual. So the mind grows on what it is fed in the daily life. Lines of mental growth will be to some extent predetermined by innate capabilities and tendencies, but these only partly limit the process; they do not fix its precise character. The particular ideas and connections of ideas that form the intellectual habits fix the peculiar coloring of the feelings and the special lines of conduct will all be determined by the character of the surroundings." A particular trend of thought now becoming popular in educational circles is derived from a philosopher of a century ago, Herbart, and which accentuates in stronger terms than those of Sully the effect of education. According to Herbartian pedagogies children have at first no real moral character but acquire it through the union or association of acts of will that have a moral quality. It is the business of training to bring all classes of will action under the dominion of moral maxims in order that "a symmetrical passion for good" may be created. Thus it is clear that in the Herbartian doctrine it is the tone and quality of the general habits that determine the character, and these habits are not fortuitous, or predetermined by birth.

As to the effect of habits, however acquired, it is undeniable that they produce in time conditions of mind and body that in themselves reflect a healthful or injurious nature. Are the habits of a vicious kind? Persisted in they accomplish alterations in the substance and relations of the cerebro-spinal organism that are abnormal and degenerate. Thus the soil of mind becomes more appropriate for the generation of evil fruit than for good. The benign elements become feeble and uninfluential or so perverted that their response to suggestions of a vicious sort contributes to moral disorder.

The studies of the cerebralist have shown that the form and constitution of the brain bear a particular relation to mind capacity and character. We know that certain endowments of structure render one more susceptible to the adoption of manners and habits of a coarse and perverting nature. Benedikt, Lombroso, Maudsley, Spitzka, H. Mann, Allen, Buttolph, etc., have discussed the characteristics of structure that may dispose a man in certain relations of suggestion to respond to impulses of an unlawful kind. Dr. Maudsley remarks, "All broad-headed people are very

selfish; that is, all who have the head broad in proportion to its length. . . . An undue preponderance of the breadth of the head throughout the region in which they (the phrenologists) place the propensities, indicates with certainty an animal self-love which can scarcely be trusted at all times to adopt only fair means for its gratification." The London professor, arguing from the relation of the anterior brain lobes to intellect further remarks, "The bad features of a badly formed head would include a narrowness and lowness of the forehead, a flatness of the upper part of the head, a bulging of the sides toward the base and a great development of the lower and posterior part; with these grievous characters might be associated, a wideness of the zygomatic arch, as in the carnivorous animal, and massive jaws." Such a development of brain intimates the possession by nature of strong animal instincts, and a comparatively weak endowment of those sentiments that inspire kindness, sympathy and deference. Upon such a stock it were easy to graft habits of a vicious sort through exposure to surroundings that are degraded and brutal.

Thought habit then has its coördinate factors in the cerebral substance, where molecular changes are produced with facility and effect correspondent to the duration of the habit. Repetition operates not only to render these molecular changes more rapid and easy, but is productive of growth of nerve substance of a special sort, an evolution correlative to the habit acquired. The motor areas of a trained artisan are more extensively furnished with appropriate cells than those of an office clerk. The use of hand and arm stimulate action and consequent cell proliferation in the anterior and posterior ascending convolutions. The artist develops those centers of form and color that are of daily employment in his profession and they become noticeably marked in his cranial physiognomy. Professor Gates of Chicago experiments on the color sense of dogs and proves that the enforced exercise of that sense for a period had a result in decided increase of brain tissue in the color area.

Conversely, disease of mind faculty is attended with declension and disease of the cell elements of the coördinate center and decline in strength. Any habit, therefore, that inhibits or suppresses the activity of an important intellectnal or moral faculty disturbs the mental balance and impairs the integrity of judgment in no trifling degree. This impairment if not compensated will go on until pronounced insanity results. Interference with the normal function of any physiologic organ continued or frequently repeated causes deterioration of that organ and of its cerebral center of nervous supply. This deterioration implies either functional decline or positive disease of the reciprocal parts. Habits that contribute to the maintenance of health oppose tendencies to disease, of whatever nature the disease may be. The late Sir James Coxe, in his enumeration of the six leading causes of physical deterioration that may eventuate in insanity, places "dissipation of various forms" first, because habits of dissipation affect the nervous system more directly and certainly than other causes. The specially conspicuous of these habits are: Alcoholism, the use of tobacco and opiates. The disturbances of function wrought by the practice of taking alcoholic beverages daily belong to our common stock of knowledge and represent generally or analogously what of nerve injury is done by toxic narcotics as a class. They depress the vital tone of every organ of the body. Of alcohol we know that its high diffusible quality enables it to penetrate the animal tissues in every direction, and by impairing the nutritive properties of the blood to interfere with those metabolic changes that are essential to the maintenance of the integrity and vigor of every organ, muscle, nerve, gland, mucosa, lymphatic, etc., all suffer deterioration from frequent contact with it. We know well its ravages on stomach, kidney, heart and liver, and its inhibitive effects upon the cerebral and spinal centers are matters of every day observation. It may be that Hyrtl more than merely accentuated his impressions from laboratory examination when he said that he could easily detect the brain of a drunkard in the dark because of its comparative hardness, but we certainly should expect a similar effect upon the nerve mass whether it were placed in alcohol to soak, or the latter instilled by daily installments. The impairment of the functional energy is so reflected in the character and conduct of the habitué that we are irresistibly led to the conclusion that the disturbances of the nervous centers are those with which the higher psychical faculties of mind are directly concerned. These no longer exert their normal control in the intellectual and moral expression, and weakness of will and instability of judgment advance *pari passu* with the alcoholic invasion.

It is not claimed that alcohol has a *specific* effect upon certain brain parts, and attacks them on opportunity, but that by perversion of the nutritive supply it as an early effect lowers the functional tone of the brain, and these may introduce a train of evil consequences to motor and psychic action. The senses, which at first may be exalted through inhibition of vaso-motor control, become later obtunded; the intellectual perception relatively declines, and with this power to reflect and to appreciate nice distinctions is lost. The sentiments of courtesy, refinement and kindness, esteem of virtuous character, independence and manly resolve become less and less exhibited, until quite replaced by indifference to the commonest usages and requirements of propriety and duty. The character assumes more and more a pathologic form. We have the exhibition finally of a mental lesion, as insanity, whose physical concomitants of perverted function offer material for an easy diagnosis. The alcoholic invasion especially affects the higher organic centers of the brain, those that correlate moral apperception, because of their more delicate adjustment to the economy of nutrition and sympathetic impression. Then, too, their comparative remoteness from the arterial centers may be another reason for their disturbance. Grief, disappointment, chagrin, poverty, may be alleged as cause for a large proportion of society's inebriates, but the fact remains that eight-tenths of the intemperate drinking that abounds is begun in the home or the friendly circle by indulgence of the appetite in ways imprudent or vicious. As Dr. Bushnell once said: The scale and order of simplicity once broken, then ensues a distempered or distemperate life that runs more certainly to that which is intemperate.

The cocain, opium and other drug habits of our day may run a shorter course than that of the alcoholic, but their perverting effects are not more certain or disastrous. A similarly associated impairment of the physical and mental organisms is the outcome, a similar change of function, from capacity to incapacity, from strength to impotence, from probity to dishonesty, from nobility to vileness, from humanity to

bestiality. These are pathomental artefacts of an uncontrolled self-indulgence. Now that we have the *dictum* of the French pathologists at command to supplement our own observations, we know that the habit of smoking operates to produce changes in the blood and the tissues through cardiac irritation and gastric derangement, changes that in time necessarily lower the general vital tone, and affect unhappily the economy of mind. The pessimism and dyspepsia of Carlyle were correlative. What of his inveterate pipe smoking and his almost equally inveterate indulgence in stomach-trying diet? How the fine cells of that powerful brain must have suffered from the scanty nutritive supply that a vitiated blood stream brought to them! We can easily imagine that the blood of the author of that story of the French Revolution so luridly picturesque in its narration of horror must have bristled in the microscope with its billions of crenated corpuscles. The eccentric vision of the historian and the distempered conduct of the man as husband and acquaintance furnish a homily for the moralist, and a fertile study for the neurologist.

The successful treatment of the chronic habitué involves as a primary object the readjustment of the factors of his thought life, so that his motives for right and orderly living shall be renewed and his will inspired with energy and persistence. But we shall fail to restore coherence and harmony in his psychic relations if we do not in the outset attend to the rebuilding of his body, awakening to fresh activity the organic functions, so that the nervous correlates of mind—cell and fiber—shall be supplied with the elements essential to their reinvestment, and this reinvestment should go on in advance of psychic reformation in order that the intelligence of the man shall be conscious of a growing strength. The older the habit the more difficult its management, yet it is the age of the habitué that has more to do with the determination of curability. Who, however, will say that the degenerative changes in a given case have gone so far that no improvement is possible? Those whose experience warrants an expression of judgment are inclined to take encouraging views of the effect of considerate treatment. The President of this section, after years of critical observation, has said: "The tendency in nature being toward the maintenance of the perfect type, we may look for an endowment of new normal tissue where all the conditions are favorable, and under such circumstances a cure, or what is popularly called reformation, takes place."

Each case must be studied by itself; the type of constitution being understood, the stage of degeneration may be approximated, and a forecast of the probable outcome of systematic treatment be ventured.

DISCUSSION ON PAPERS OF DRS. DRAKE AND DRAYTON.

Dr. CHARLES H. HUGHES—The first paper seems to take a rather peculiar position. The term mental disease, as applied to insanity, and as a synonym for insanity, has been understood by alienists and psychiatrists in all countries to be a conventional term. Science has assumed that mind is the aggregate of the personality and individuality of the person, as discerned through the several functions of the brain and cerebro-spinal axis. It has never entered into the metaphysical question as to what is mind. Nor has it attempted to fathom the nature of the cell. Psychologic science has relegated the question of the nature and essence of mind to the unknowable. The Cartesian philosophers maintained that the mind resided in the whole and in every part of the organism; that it represented the individuality of the person and was the psychic portraiture of his personality. Science has to do with material things; its instrumentalities of research are material, and the organs which it examines with the microscope, the test tube or the crucible are material. Science says that the brain is the organ of mind, adopting that term and accepting it from the psychologists. The somatic psychologists study the physiology of the brain in regard to the manifestations of what philosophy has called mind. Now, we have never attempted to maintain that the material entity of the psychologists could become diseased, because if it become diseased it might also die, and we know the dilemma in which we might be placed. Science has judiciously evaded this question, and left it to the domain of pure psychology. No sound psychiatrist, no correct alienist, who is careful of what he says, will go upon the witness stand or the rostrum and maintain that the mind can become diseased.

We do not think that the brain centers preside exclusively over the material metabolism of the organism. While science has reached the point at which it believes that conditions in the gray cortex have much to do with the normal metabolism of the organism, it has not reached the point at which it can say that they all reside there, for we know that acephalous beings have the power of physiologic metabolism in their ganglionic processes; that hearts are formed, livers developed, kidneys evolved, etc., without the intervention of the higher psychic centers of the cerebrum. While, in the main, the object of the paper would meet with the concurrence of most men who have made this a life-long study, still I think it has somewhat trespassed beyond the domain of science.

Dr. BURR—It seems unnecessary for us to go into matters in connection with the soul, the spirit.

The subject of autointoxication I consider of great importance to those who are treating insane conditions. I find myself confronted with difficulties in the way of medicating those cases ordinarily. They have symptoms which I would like to meet by medicine directed to the condition, but the objection of the patient is very difficult to counteract.

As I have always understood the term hypochondriasis, it signifies a willful lack of interest in one's self, and I am satisfied that in the majority of cases of hypochondriasis there is at the bottom a pathologic condition, and often this condition of autointoxication, owing to trouble with the kidneys, the intestine, malassimilation and faulty metabolism.

Dr. SANGER BROWN—The great trouble in neurology has been that we have been wanting in sufficient distinct and clear data with which to work, and I think the conception of the neuron as it has been promulgated by students in various countries in the last year or two—due mainly to the great improvements that have been made in the process of staining, and studying the primary unity of the nerves—has gone a great way toward giving the remarks which we have before made, and which have been hypotheses, an actual definite meaning.

I simply wish to refer to the published results of Dr. Berkeley's recent investigations in Johns Hopkins University, which were set forth some months ago in *The Brain*. This only covers one department of this subject, but it is a very important one and one which I think ought to be emphasized, because it shows that it is possible we may look forward to a time when the various poisons, the auto-infections, etc., can be definitely reducible to a distinct anatomic basis; indeed, that it may be possible, perhaps, to reduce insanity to this anatomic basis.

Heretofore we had been forced to say that there were gross changes in alcoholism in the brain. There might be sclerosis in alcoholism or there might not; I do not think it is possible to demonstrate that. If two brains were laid down before us, one of the worst drunkard in the world, and one of a man who had never tasted a drop, I do not think it would be possible to differentiate between them. Dr. Berkeley took a large number

of rabbits and fed them with all the alcohol they would stand for seven or eight months, until many of them died of convulsions. He found no process of hardening on examining their brains but he did find changes in the body of the neuron —not changes in the axis cylinder. This was not the result of the staining process, because he made numerous control experiments. I think this indicates the direction in which we should look, because when we are studying neurology we are only studying the function of the neurons, and everything indicates that they may be regarded as so many units, and we can study the symptoms exhibited from that standpoint.

Dr. J. T. SEARCY—I refer in my paper to changes by toxins in the neuron, a change in the shape and size of the body, this becoming shrunken, and the processes of the neuron being altered at their extremities.

The changes in the axis cylinders of peripheral nerves are also noted in some conditions like the neuritis of alcohol and peripheral neuritis. The whole subject is still in the beginning of its growth.

Dr. DRAKE—One of the strictures on my paper seems to be as to my claim that the functional activity of the centers of metabolism was dependent upon the tissues in the brain. This I wish to explain, as I include in the brain everything in the cranial cavity. The ganglionic centers I consider to be centers which receive their energy from these higher centers. If they receive no reinforcement of energy, then the metabolism ceases, but so long as they are connected by nerve fibers with the higher centers then the process continues. Cut the connection and the process continues for awhile, but as soon as the energy which is already contained in those lower centers is exhausted the metabolism ceases. The heart can pulsate out of the body for awhile by virtue of the energy which is contained in its own ganglion centers. As soon as that energy is expended, it ceases to beat.

Dr. KLEINSCHMIDT, of Washington, D. C.—Hodges has shown very clearly the great influence exerted upon the central nerve cells by excitation of its axis cylinder process, the changes being shown in altered conditions of form, etc. Again, it has been shown, over and over again, by Weigert especially, that normal excitation, if repeated through the cells of the nerve centers, have their influence upon the morphology and undoubtedly also upon the chemistry and molecular structure of the central nerve cells. So that, considering the central nerve cell as the center of energy, we may readily suppose that influence such as cited by the gentleman from New York will have a very decided impression upon the central nerve cell. He held that by a proper mode of educating the brain that had been reduced by disease or intoxication or bad habits, we were able to reproduce by proliferation new central nerve cells. I do not believe that that process has as yet been clearly demonstrated. I do not believe that the central nerve cell, and especially the higher differentiated nerve cell of the cerebral cortex, under any conditions can increase and multiply by proliferation. But there is another way in which we may educate that central mechanism. Taking the studies of the neuron we find that the nerve cell itself adds to its connections and the capacity of the nerve cell is entirely to be measured by the number of connections it can make with other nerve cells, bringing it into nearer connection with the center of the system in which it may be. In this case proper education may lead to a new combination, to increase in the protoplasm processes by which new combinations are brought about, and in that way we gain a greater result. We can not suppose that all nerve cells are equally affected; and all the nerve cells in a single cortex are probably not occupied at one time. Now, if we can increase the metabolism in a nerve cell to such an extent that these processes shall form into wider connections, we therefore improve that nerve cell. I do not think that a cerebral cell once formed can proliferate.

Dr. CHARLES H. HUGHES—I only know of one man who ever maintained that the cerebral cortex cells could be reproduced, and that was John P. Gray, of Utica. The peripheral nervous system can reproduce the central nervous system. I do not think in regard to the question of degeneration, that toxicity is the sole cause of mental aberration in those cases in which insanity appears. I think that we are not yet prepared by any of the later researches to explode the doctrine that insanity is the product of more than one generation; that a morbid aptitude of the cell, or the neuron as we shall have to say now, and we shall have to speak of neurons, neurils, and epi-neurils, in order to be in accord with the progress of modern histologic research—is one of the factors. I do not think that insanity, as a rule, is primarily developed by any form of acute toxicity. It is excited by it, but it resides originally in the morbid aptitude of the psychic center or cell envelope.

I do not believe, however, in the degeneration of the race, that the psychic sense of the average human being is less capable of sustaining pressure; on the contrary, I believe that they are standing more than the same centers in our ancestors and that the tendency of nature is to preserve the type:

"So careful of the type she seems;
So careless of the single germ."

Individuals fall by the wayside, unable to carry the burdens laid upon them, and failing to learn wisdom early in life.

It is the pathologic condition of the center of the cell soil that gives rise to the morbid manifestation. Given a certain influence that acts upon the psychic centers of one individual and his cerebrum sustains it without morbid result. One individual takes alchohol in his blood, and displays no delirium; another takes opium, and displays no delirium; while the third becomes crazy drunk or markedly insane under the influence of either. It is the pathologic condition of the cell that displays the aptitude of degeneracy of habit, and it is the morbid tendency which is the exciting cause.

SARCOMA OF THE CHOROID, A SERIES OF CASES.

Delivered before the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY GEORGE F. FISKE, M.D.
CHICAGO.

Case 1.—M. E. B., architect, age 50, presented himself April 3, 1888, complaining of a cloud in the right eye which followed a severe attack of "catarrhal fever" three weeks before.

O. D. 36 in. Sph., 42 in. Cyl., 90 deg. 5·5 Sz.
O. D. 48 in. Sph., 18 in. Cyl., 90 deg. 5·6 Sz.

In the left eye there were several choroidal plaques in the upper outer periphery, and floating opacities in the vitreous. In the right eye separation of the retina on middle nasal side, extending within 2 mm. of the papilla. Nothing to distinguish it from ordinary separation of the retina. No suspicion of tumor.

Patient gave a history of very close application and was in a highly nervous state. Consultation was had with two other specialists, with no thought of sarcoma. Patient stopped work for two weeks, protected the eyes from light, wore a bandage and remained in bed quite constantly, with no change. He then resumed his work to a certain extent, contrary to advice, and did not return to the writer until June 18, when vision was reduced to perception of light, anterior chamber shallow, tension plus, pain and cyclitis. Diagnosis of sarcoma was made and immediate evisceration of the orbit advised. Patient preferred to go to Europe, where eye was enucleated in Berlin, the middle of July and proved to be a melano-sarcoma, patient dying within six months, result of metastases in the liver; no recurrence at seat of operation.

Case 2.—Mr. G. A., plumber, aged 40, consulted me Oct. 9, 1890, having noticed for five weeks that sight in the right eye was imperfect.

O. D. 0.75 D. Cyl. 90 deg. 5·8 Sz.
O. S. 0.75 D. Cyl. 90 deg. 5·5 Sz.

Examination of the right eye with the ophthalmoscope revealed a small separation of the retina on nasal side, showing the retina pushed forward by a small body, apparently 1 mm.

in diameter, extending diagonally over the papilla, not quite to its center. Diagnosis was made of sarcoma of choroid and immediate enucleation advised.

Patient did nothing for nearly two weeks and then consulted three eminent colleagues, all of whom pronounced the separation as probably not due to a tumor, though one proposed a needle operation for purpose of diagnosis, which was refused. This means that the separation had extended greatly during the two weeks, as there was no question as to the diagnosis October 9. January 19 patient again consulted a colleague, presenting iridocyclitis and a glaucomatous condition. Enucleation was performed Feb. 1, 1891, and a choroidal tumor of 5 mm. in diameter found, of uniformly black color, composed of small spindle cells without reticulum and numerous large pigment cells. Later, patient came again under my observation and remained there for six months. There was no recurrence in the orbit of the sarcoma, but the patient began gradually to fail; six months after the operation, went away for his health and died within eighteen months of "liver trouble." No post-mortem.

Case 3.—Mrs. M. presented herself Sept. 16, 1893, with a history of poor vision in right eye for several months. Vision equals fingers in the outer field at two feet. Separation of the retina involving all but the outer upper and inner upper portion of the retina. Optic nerve not visible. No tension and no iritis or cyclitis. Media clear and the retina apparently pushed forward by a large, dark, rounded mass growing from the outer central portion of the choroid.

Diagnosis: Melano-sarcoma, and I enucleated September 20. The tumor was round, 7 mm. in diameter, not extending to the papilla; composed of spindle cells, round granular and pigment cells. Optic nerve showed no infiltration nor did specimens from the connective tissue of the orbit. Jan. 1, 1896, there had been no recurrence; patient in normal condition.

Case 4.—Mr. E. C., merchant, aged 56, came Nov. 6, 1893, with a history of poor vision in right eye since May 1893. Old corneal scar from blow with a marble at ten years of age. Counts fingers at five feet. Separation of the retina nearly complete, except in upper inner quadrant. Ophthalmoscope reveals a mass reaching nearly to the iris in front growing from the outer upper portion of the field, covered by the retina still showing the retinal vessels. Enucleation advised, with diagnosis of sarcoma of choroid. I operated Nov. 17, 1893, and found tumor of 4 mm. diameter, having its origin 6 mm. from the papilla. Tumor had a very small base, was a spindle-celled sarcoma with some pigment. Patient's condition Jan. 20, 1896, good, health excellent, with no sign of recurrence.

Case 5.—Mr. C. K., business man, age about 48, consulted me November 28, 1893, with the request that I give him a pair of glasses.

O. D. — 1 D. Cyl., 160 deg. 5-6 Sz. Partly.
O. S. —0.50 D. Cyl., 160 deg. 5-5.

The day was rather dark and vision so good that it was only a fixed habit which led me to examine the fundus, when I was greatly surprised to find a small tumor on nasal side near the macula, with retina pushed forward and adherent to the tumor; no separation of the retina extending away from the base of the tumor.

Diagnosis: Sarcoma. The patient lost a brother from carcinoma of the tongue. Patient went to Brooklyn for operation at the hands of a friend who is a specialist and the eye was enucleated Dec. 5, 1893.

The following is the report of the pathologist at the New York Hospital: "The tumor is almost spherical in shape. It originated in the loose connective tissue of the suprachoroidal space and involved the entire choroidal layer and external layer of retina, pigment layer, rods and cones, mebrana limitans externa and extended a short distance on either side in the external molecular layer of the retina, the other layers of the retina are pushed before the tumor and can be recognized as a thin membrane everywhere limiting the tumor in front. Posteriorly it is limited by the sclerotic, which at the point of contact with the tumor is only one-half the normal thickness. The tumor is 7 mm. in diameter. It is estimated that the center of the tumor is 5 mm. from the physiologic excavation. It is composed of spindle cells of medium size, spindle-celled sarcoma, with a minimum amount of basement substance. The vascular supply is quite abundant. There are pigment granules throughout, but it can not be regarded as a melanotic sarcoma. Along the course of one or two of the vessels in the sclerotic coat are numerous round and spindle-form cells, but can not be identified as sarcomatous elements. The optic nerve, dural sheath and external sheath show no evidence of tumor tissue."

Feb. 29, 1896, patient's health perfect; no sign of recurrence.

There are in addition to the above five cases, of which I have been able to give more or less complete histories, two cases in my record books which I have not been able to report; one where the diagnosis was quite certain and whose history I hope to give later, and another where it is a question as to whether there is a tumor under the separation of the retina or not.

Of the above five cases two died, one certainly and the other probably as a result of a recurrence of the sarcoma in other parts of the body. Both cases where death ensued were rapid in progress and had reached the stage of glaucoma and involvement of the ciliary body.

The report is presented for the purpose of a discussion as to the practical questions which present themselves.

1. The question of early diagnosis between the separation of the retina and the separation of the retina which is caused by a tumor behind it.

2. The question as to whether enucleation shall be advised in cases where the diagnosis is not certain.

3. The importance and duty of assisting one another by giving to each patient, in all cases of doubt, i. e., in almost all cases of ablatio retinæ, full notes and sketches for use when patients consult other specialists, which is usually the case.

First, as to diagnosis: This is often easy when the tumor can be seen, or where glaucomatous symptoms or inflammations of the ciliary body, have presented themselves, also where the separation follows extreme myopia, or a blow, or injury, or seasickness. Where the separation is slight and occurs in the upper half of the field, the tendency of the sub-retinal fluid to seek the lowest level will often assist the diagnosis, and in some cases drawing off the fluid with a hollow needle and syringe will clear up the doubt even though the separation is not cured by that means.

The importance of early diagnosis is greatly increased by the fact that these choroidal sarcomas almost always occur as primary and not as metastatic sarcomas. I have not found in the literature a single case of a sarcoma or melano-sarcoma occurring as a metastasis following sarcoma in some other portion of the body. On the other hand, particularly in the case of melano-sarcoma, metastases in other parts of the body following the sarcoma in the eye-ball are very frequent and fatal.

Second, as to indications for an operation in cases of doubt, I would suggest enucleation be advised where: *a*, the vision is irrevocably destroyed and there is doubt as to the presence of a tumor; *b*, where, though there is slight vision present, it is failing rapidly through extension of the separation, and there are no previous examinations by colleagues, excluding the presence of a tumor, with no good reason for excluding it from the history of the case; *c*, where glaucomatous symptoms show themselves or cyclitis or irido-cyclitis.

DERMOID TUMORS OF THE CORNEA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY ALBERT RUFUS BAKER, M.D.

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Although a number of cases of dermoid tumors of the cornea have been reported from time to time it has seemed to me that a brief report of the only two cases that have come under my observation might be of sufficient interest to claim your attention.

Case 1.—July 1880, Mr. M. G., aged 24, a peculiar growth from the cornea of left eye, protruding between the lids, present since birth, pedunculated, occupying the entire palpebral opening, measuring about one inch in length by one-half inch in breath, and rather thickly studded with stiff black hair. Being pressed together by the eyelids, the tumor presented upon superficial inspection the appearance of a small hair brush instead of an eye. The eyeball was entirely concealed by the growth, but by opening the lids widely and pushing it downward some clear cornea could be seen, and fingers counted. Patient declined operation at that time but returned in 1884. He thought the tumor was growing larger but it seemed to me about the same size as when first seen. An anesthetic was given and the tumor removed without difficulty. It was found to be attached to a little more than half of the cornea at its lower and outer portion, but peeled off smoothly, leaving a transparent cornea beneath.

It extended close up to the sclero-corneal margin but did not encroach much, if any, upon the conjunctiva, with which it seemed to be intimately connected. The portion of the cornea occupied by the tumor became somewhat cloudy for a few days but soon cleared up excepting a small line running in a semicircle across the cornea, marking the point of attachment; vision fairly good; is able to read ordinary book print.

Case 2.—July 15, 1893, Miss A. P., aged 17, three small flat dermoid tumors of cornea of left eye. Two of them were on the outer sclero-corneal margin and each about one-third the diameter of the cornea; the other a small one consisting of a fine line extending perpendicularly across the pupillary area almost at the center of the cornea. The three tumors were all separated by clear cornea. They had the appearance of ordinary integument with a slightly pinkish tinge. Present since birth and no increase in size. Patient was seen by Dr. C. R. Agnew in 1877. It seems to me that I have seen a report of the case by Dr. Agnew, but I have been unable to find it in the literature at my command. Under a general anesthetic I dissected off the tumors. Was very glad I gave a general anesthetic at the urgent solicitation of the patient because of the free hemorrhage which would have embarrassed me very much with cocain alone. The case made an uneventful recovery, but with much more opacity of the cornea than I had hoped, judging from my experience with the other case. There was a high degree of hypermetropic astigmatism and with full correction vision was only brought up to 20-200 S.

Ryba[1] in 1853 collected twenty-seven cases that had been reported up to that time in human eyes; three in oxen's and four in dogs' eyes. Mr. Dixon[2] reported a case of dermoid tumor the size of a hazel nut upon the lower part of the cornea and sclerotic of a little girl. The tumor was removed and found to be white, smooth and hard. The cornea after removal was transparent but in three or four days became white and opaque.

Cases have been reported by Graefe;[3] Virchow,[4] Arlt,[5] Taleferro,[6] Hulke,[7] Wells,[8] Labrum,[9] Cooper,[10] Strawbridge,[11] Risley,[12] Roberts,[13] Fuchs,[14] Brose,[15] and others.

Ammon[16] reports a case of coloboma of eyelids in which a dermoid tumor of the cornea filled the gap.

Mr. Swanzy[17] gives detail of a case he observed under the care of Von Graefe. The tumor was very large and was removed by Graefe. It occupied the whole of the depth of the cornea. The anterior chamber was opened and considerable vitreous escaped.

Milvalsky[18] (Prague) reports two cases of dermoid tumors of the eyeball. The paper is published in Cezechesh with a résumé in French. The author has reviewed the literature on the subject very carefully and has found recorded seventy-five cases of dermoid tumors of the eye-ball. Seven of these he calls atypical, being connected with the eyelids. Five of the cases were entirely corneal, and twelve were situated on the sclerotic and fifty-one were placed partly on the sclerotic.

"The relation of these tumors to the conjunctiva varied. In some the conjunctiva seemed to be replaced by the tumor tissue; in others it covered the surface of the latter, while in most instances a portion of the growth was apparently covered by conjunctiva, while the remainder exhibited on the surface a pavement epithelium, papilla, hair follicles and fine hair. The cystic form or closed dermoid is never met with in the eye."

A review of the preceding cases seem to show that they are all congenital; a few may be located on the cornea alone, a few on the sclerotic but the largest number involved both structures and are found most frequently at the outer and lower sclero-corneal margin.

Van Dusyse's[19] ingenious theory as to the origin of these tumors is not generally accepted, namely, that the amnion was at one time united and through constriction and separation, there remained at the original point of contact amniotic cells from which later the dermoid cysts developed." A more reasonable explanation is the one generally accepted as to the etiology of dermoid growths in other parts of the body, *i.e.* an inversion of the epiblast during embryonic existence, an islet deposit of cells, which makes skin, sebaceous glands and hair follicle.

Little need be said as to treatment. Removal for cosmetic purposes is usually desirable. Notwithstanding Von Graefe's unfortunate experience the danger of penetrating the eyeball is slight. It does not seem to me that cauterizing the wound as recommended by most writers is necessary, and may only add to the amount of opacity present upon recovery. The same objection is true with regard to the advisability of covering the surface of cornea exposed with conjunctiva, recommended by some writers.

BIBLIOGRAPHY.

1 Ryba: Prager Viertel Jahrschrift, 1853, Bd. 3 p. 1.
2 Dixon: Royal London Ophthalmic Hospital Reports, p. 112, July, 1895.
3 Graefe: Archiv f. Ophthalmologie, VII, p. 3, X p. 214.
4 Virchow: Archiv f. Pathologische Anatomie, 6 Band, Heft 4, p. 555.
5 Arlt: Krankhendinches Binde & Hornhaut, p. 170.
6 Taleferro: American Journal of Medical Science, July, 1841, p. 88, Lawrence on the eye, p. 341.
7 Hulke: Ophthalmic Hospital reports, Vol. III, p. 332.
8 Wells: Royal London Ophthalmic Hospital reports, Vol. III, p. 232.
9 Labrum: Annales d' Oculistique, September 1870, p. 135.
10 Cooper: London Medical Gazette, November, 1841, p. 278.
11 Strawbridge: American Journal of Medical Science, 1873, p. 106-107.
12 Risley: Philadelphia Medical Times, 1879-80, p. 490.
13 Roberts: Philadelphia Medical Times, 1879-80, p. 548.
14 Fuchs: Text Book Ophthalmology, p. 115. Klin. Monats. f. Augenh. Stuttgart, 1880, XVIII, p. 131-134.
15 Brose: Archives of Ophthalmology, October 1895, p. 479.
16 Ammon: Klinische Darstellungen, Pt. 2. Tab. 1. Fgs. 8 & 9.
17 Swanzy: Dublin Quarterly Journal of Medicine, May 1871, Royal London Ophthalmic Hospital Reports.
18 Milvalsky: Ophthalmic Review, Vol. VII, p. 217.
19 Von Dusyse: Ann. Soc. de Med. de Grand, 1882, LX, p. 170-206. Also Ann. d' Oeul. Brux., 1882, LXXXVIII, p. 101-132.

DISCUSSION.

Dr. ADELAIDE E. PORTMAN, Washington—From the situation it can be readily understood why it is so serious in removal as it involves the whole depth of the cornea and the sclerotic, removal causing results to visual acuteness. Hirschberg reports a case, in a girl of 17, of enormous size in which the result was vision of normal acuteness.

Dr. J. A. WHITE, Richmond—I reported a case of dermoid growth of the cornea in a man some years ago. The growth was so large as to prevent closure of the lids, the cornea being entirely covered and the sight in consequence abolished. It had begun at the corneal margin some ten years previously and gradually overspread the cornea in which by pressure it had produced ulceration, followed by cicatricial adhesions over one-third of its surface. Its removal was followed by favorable healing, the cornea cleared and subsequently the eyesight became nearly normal. This tumor was not congenital but was shown by the microscope to be a dermoid growth.

Dr. D. S. REYNOLDS, Louisville—The technique of the operation is vastly more important than the study of the comparative

rarity of dermoid growths of the cornea. Any growth of this kind which invades the sclerotica must make any attempt at complete removal fatal to vision by the inevitable cyclitis which ensues. A comparatively large growth located entirely in the cornea may be safely removed. In the case of a man who lost the fellow eye, I removed a large dermoid tumor of the cornea, closing the wound by the Lembert suture, with the result of restoring such useful vision as enabled the man to go about alone. If the sutures penetrate the whole thickness of the cornea the openings through which the sutures pass will continuously drain away the aqueous humor, keeping the sutures so long in contact with the surface of the iris as to lead to its fatal inflammation.

WATER.

BY I. N. LOVE, M.D.
ST. LOUIS, MO.

In searching for the striking and unusual we often overlook that which is trite and commonplace to our detriment. Nowhere is this more true than in the practice of medicine. I believe that we are, safe not only as teachers in medicine but among ourselves, in laying stress upon the importance of using the simplest possible means for gaining a given end. The neophyte is not the only one who seeks for the unusual, for the formidable, as a means to an end and overlooks that which is near his hand. Indeed, all of us are prone to err in the same direction. As a profession we need to call a halt, ever and anon to get down off of our stepladder in our search for the unattainable, to come down to terra firma and use the things that nature has given us. Drugs, drugs, drugs, seem to be the chief inspiration in the life work of too many medical men, and in these modern days we must have a care in our use of animal therapy, for we know not as yet but what this form of medicine is quite as dangerous, if not more so, than the articles belonging to the mineral and vegetable kingdom; the drugs of which Oliver Wendell Holmes very truly said, "That the world at large would be better if they were all thrown into the sea," but the fishes would more than likely cease to be, as a result of the dumping.

Water, which is everywhere near at hand, ready for use, is one of the most important remedial measures we can bring into play. The hydropaths, who for long were looked upon as fanatics, have done humanity and the medical profession a service, in that they have demonstrated the great value of water. However, the fanatic in the use of one remedy oftentimes is in danger of denying his patient remedies of value that would work in harmony with his special hobby. Surely, when we recall the fact that more than 75 per cent. of the whole make-up of the human body (including every tissue of the same) is water, we can appreciate its importance. It has been demonstrated, time out of mind, that while water fulfills many other subsidiary offices, it is essential for the occurrence of molecular change, or mobility—the essence of the manifestations of life. In the absence of water a state of molecular rest (which means the absence of activity) prevails.

It goes without saying, that water in some shape or other, is one of the essential conditions of life and just as essential as solid matter, it not only entering into a constitution of every part of the body, but is required for various purposes in the performance of the operations of life. Without it there could be no circulation or mobility of any kind. "It forms the liquid element of the secretions through the medium of dissolving and enabling the digested food to pass into the system and the effete products to pass out; a constant ingress and egress are occuring, and the former requires to stand in proper adjustment to the latter. The demands for water are effected by the amount of muscular exercise and the degree of temperature to which the individual is exposed, as in both conditions the loss through the skin as well as through the lungs is greatly increased." It has been a popular impression for long that the drinking of water with the meals interferes with digestion in diluting the gastric juice, and as a result of this notion, the public have largely refrained from drinking water with their meals. Pavey well says that it is a mistaken notion to think that when we drink with a meal we are diluting the gastric juice. The act of secretion is excited by the arrival of the meal into the stomach, and the gastric juice is not there at the time of ingestion. It happens indeed that the absorption of fluid takes place with great activity and the liquid drunk during the meal (unless the quantity be very great) becoming absorbed may be looked upon as proving advantageous by afterward contributing to yield the gastric juice which is required.

For an irritable stomach or an attack of so-called bilious colic, nothing is superior to liberal quantities of hot water as pure as possible. The first amount administered may be rejected, but if so, it accomplishes the washing out of the stomach. If the drinking be persisted in, a large quantity will be retained and finally a relaxation of the pyloric orifice of the stomach will occur, and the water will pass freely into the smaller bowel, relaxing and stimulating secretion as it goes. The intense pain of these attacks can often be promptly relieved and if helped by the addition of hot water applied over the stomach and bowels, through the medium of cloths saturated with the same, and occasionally sprinkled with small quantities of turpentine, which acts as a counter irritant. In the majority of cases the stereotyped administration of morphin by injection, is uncalled for. Indeed we are safe in saying that in the bulk of the attacks of acute indigestion and intense pain resulting therefrom, we had better relieve the condition in the simple manner suggested, rather than apply remedies which deaden pain, check secretion and retard convalescence, and frequently mask the preliminary symptoms of a dangerous disease. Nothing will more promptly relieve a patient's suffering from the after-effects of a banquet or midnight dinner, where the victim has possibly tarried with and looked too long upon the wine which is red (and white wine too for that matter) resulting in the dark brown taste and that terribly different feeling in the morning, than the imbibition of large quantities of hot water. The instruction to drink one or two pints of extremely hot pure water, prior to rising and sandwiching in between the various glasses a cup of black coffee, without cream or sugar, will give us a good result. The hot water washes out the stomach from above downward, stimulates the activity of the excretory glands, soothes and tranquilizes the nervous system, which is thoroughly on edge, and the black coffee administered in the manner suggested, meets the necessities of the hungering and the exhausted nerve centers, serves as a disinfectant for the alimentary

Read at the meeting of the Mississippi Valley Medical Association, St. Paul, Minn., Sept. 18, 1896.

canal and encourages diuresis. The injuction to abstain from food for several hours, will as a rule make our patient all right and in good shape for a a hearty mid-day meal.

While it is true that water does not in itself undergo any chemic alteration and hence is not susceptible of liberating force, does not in other words, constitute a force-producing agent, yet it contributes to chemic change by supplying a necessary condition for its occurrence in other bodies. In other words the proper metabolism of tissues, the entire scheme of nutrition, depends upon water. Not only do we need water then for the proper accomplishment of nutrition and as an element of food, but we need it for eliminating purposes. Pavey has stated that it may be reckoned that we receive from about fifteen to twenty-five ounces of fluid into the system mixed with solid food that is consumed and, besides this, it is advisable that about sixty to seventy ounces and even in some cases as much more should be taken. The average amount of urine passed daily may be said to be fifty ounces and there is considerable loss of fluid through the skin and lungs. To meet this waste by elimination, compensation must be affected by a corresponding amount of liquid; as long as the fluid taken is devoid of noxious properties a free supply must be regarded as beneficial, forming as it does, a means of carrying off impurities from the system. Pavey further says he believes that the benefit derivable from a course of water treatment is often in a great measure due to this cause. Water then, taken in free quantities acts as a purifier of the system, flushing as it were the animated system of sewerage, dissolving out poisonous materials and waste products of the body, which otherwise might be accumulated. For instance it is well known that uric acid, a very important factor in gouty conditions, requires a large amount of water to render it sufficiently soluble to be carried out of the system. For fully fifteen years I have been impressed with the thought that the majority of people, sick and well drink an insufficiency of water. I would advise the establishment of the water drinking habit on the part of children from the beginning, through life. And as each year passes, I have been more and more convinced of the correctness of this position. It is the universal observation that thin people are scant water drinkers and a change of habit in this regard often results in an improvement quite manifest. Then again we will observe that the fat and well-fed looking ones are uniformly liberal water drinkers. We have then in this, evidence of the fact that a free supply of water improves nutrition. Furthermore, the one who does not drink water, often has a dark, swarthy, so-called bilious complexion, inactivity of secretion, manifested in the appearance of the face; whereas the water drinker has a clear, healthy eomplexion, suggestive of the fact that secretion is active and that the poisons due to waste are not retained and stored up in the system. We can not impress too forcibly upon the young and particularly the female devotees of society, that the greatest improver of the complexion which they can have, is the free use of water internally and externally. Surely if the general conditions of those who are supposedly well are improved, it follows that those attacked by disease in any form, will be the better for the free use of water. When medicine is administered, it should be accompanied or followed by as large a quantity of water as may be retained by the patient. Prompt solution, absorption, action and elimination of the medicine will be the result.

For years, in the management of my typhoid fever patients, as well as most other diseases, I have insisted upon the drinking of a liberal quantity of water, endorsing by my practice the course of Debove, who administers almost to the exclusion of all drugs in typhoid fever from four to eight ounces of cold water, every two or three hours when awake, to wash out the poisons from the system. The free secretion which follows its use, comforts the patient in every way and undoubtedly serves as a reducer of temperature. This internal use of water accompanied by its proper external application almost excludes medicine from the field, though it has been my custom for years, not less than ten, to use infinitesimal doses of the mild chlorid, eucalyptol, menthol and oil of gaultheria, for a gentle stimulant to excretion and local antisepsis for the alimentary canal, preferring always to have the bowels gently open with a view to eliminating all poisonous matters rather than a constipated or tied-up condition of the alimentary canal, with a consequent retention of poisons. In this connection permit me to say, as I have repeatedly said in debate, that the views and treatment of my friend, Dr. Woodbridge of Ohio, are in no way new, nor are they original. They are simply the application of the accepted antiseptic and gentle eliminating treatment of typhoid fever. I will grant that the extravagant manner of his presentation of the subject has resulted in a more general dissemination of the advantages of this treatment, but this is more than offset by the absurd position taken by him in stating that under this treatment he allows a complete recklessness in the matter of food and exercise. I know Dr. Woodbridge is honest, but I know furthermore as well as I know anything, that he is mistaken in his conception ot typhoid fever, and many of his cases reported as such, have never been made acquainted in the remotest way with Eberth's bacillus, the causative factor.

It is well known that there is no solvent which will remove poisonous materials, such as uric acid (the exciting cause of gout) and many other poisons from the system, so readly and completely as absolutely pure water. Indeed, the temperature-reducing and gland-stimulating affect of copious water drinking has been utilized for many years, and more recently by Meigs, Cantani, Dujardin-Beaumetz, Debove and Sahli.

Cantani is a great believer in the reduction of temperature slowly but surely by the regular drinking of large quantities of water. Indeed, he believes in the liberal introduction of it into the alimentary canal from both directions.

Dujardin-Beaumetz, no better authority in the world, promotes diuresis, or elimination or washing out of the products of organic disintegration (or waste) in disease by copious drinking of water.

Debove administers, almost to the exclusion of all drugs, in typhoid fever, six ounces of cold water every two hours to wash out the poisons from the system.

Simon Baruch of New York, one of the highest authorities upon hydrotherapy and value of water enjoined as a remedial agent, endorses the use of water by those whose names have just been cited, and even goes further.

Every authority will sustain the thought that the

purer the water, the more complete the elimination and more satisfactory the result in every way.

Let it be remembered that to Dr. James Curry of Liverpool belongs the credit of first using the cold water treatment in a systematic way in fevers. He employed as a rule cold effusions frequently and occasionally cold baths. His method was adopted by many physicians and soon came into extensive use both in England and on the Continent in the treatment of many febrile affections and especially in the management of typhus, typhoid and scarlet fever. It gradually fell into neglect, like many other excellent therapeutic medicines, and was for a long time almost forgotten. Dr. Ernest Brand of Stettin revived the cold water treatment of fevers in 1868 and the method came rapidly into use in Germany, Austria and Switzerland. This history of the application of cold water bears out the thought that in these modern times, that many measures which have their seeming origin in Germany are more readily accepted and popularized than if coming from other directions. There are many objections that can be presented to the extreme application of cold baths, as was the rule with Brand, the modification of Ziemssen being much to be preferred. Ziemssen recommended the introduction of the patient into water having a temperature of ninety-five degrees, then cold water to be gradually reduced to seventy-five degrees Fahrenheit, or even below. This method is much less apt to produce shock, and the pleasantness of the procedure is such as to render it much more acceptable to the patient and attendants. To secure the same reduction of temperature to the patient a longer time is necessary for the bath. The placing of a sensitive or nervous patient into an ice cold bath skirts the border line of the brutal and is to be condemned, except in rare cases. This method is certainly to be condemned in the fevers of children. Sponging of the surfaces with cold or tepid water in which a little alcohol or aromatic vinegar has been placed is often very comforting and soothing to the patient. It does not reduce the temperature to any very remarkable degree but has a cleansing effect on the skin and stimulates its activity, and is for that reason oftentimes a great advantage.

I am convinced that experience in the application of water in the treatment of fevers will endorse many of the conclusions of Brand, Ziemssen, Hare, Vouveret, Winternitz, Dujardin-Beaumetz, Vogl, Peabody, Austin Flint, Simon Baruch, to the effect that it is not only valuable as a reducer of temperature but as a stimulant and a helper in the direction of elimination and a tranquilizer and securer of rest and an aider in the digestive and assimilative processes essential to repair. He who had ever seen a patient almost unmanageable with the delirium of high fever or the convulsions of childhood dependent upon fever, promptly relieved by a cool bath followed by restful sleep, can not require further argument. Indeed, I believe that no one in the profession would deny that the utility of water used judiciously in this way, has been absolutely proven.

The hot bath as applied to children suddenly taken with convulsions is often misapplied. When we recall the fact that convulsions are more frequently produced by high temperature than any other cause, we can readily see the objection to extremely hot water baths. Before being used the temperature should always be reduced and if it be used, the bath should be comfortably warm and cold water gradually added. However, the hot water bath in many conditions in childhood is of great service in the treatment of those who are sick, particularly in its cleansing effect upon the skin, rendering the excretory appendages of the skin more active. It serves admirably as a tranquilizer, producing restful sleep when applied immediately before retiring, to victims who are sufferers from insomnia and restlessness.

We all know the value of hot water when applied locally to inflammations. Recalling the parboiled, shriveled, whitened look of the washwoman, whose hands remain in hot water long, we can readily understand that the hot water drives the blood from the inflamed tissues and gives great relief to the pain, as well as removing the trouble permanently. Racking headaches can often be relieved magically, as any lover of the luxury of a graceful barber and a comfortable barber's chair can testify, by the application of towels rung out in boiling water and laid across the forehead, eyes and part of the head which seems to be most affected. Apparent suffocation and complete stenosis accompanying diphtheria and acute laryngitis is often relieved very satisfactorily by a liberal application for a few hours of cloths wrung out of hot water to the external parts.

Liberal poulticing with soft cloths saturated with almost boiling water are cleaner and in every way to be preferred to flaxseed, bread and milk poultices, and other filthy abominations.

THE TREATMENT OF DIPHTHERIA.

BY DOWLING BENJAMIN, M.D.

CAMDEN, N. J.

To thread one's way through the enormous and conflicting mass of statistics that have been published in regard to the treatment of diphtheria by means of antitoxin, or serum therapy, is an undertaking to appall the stoutest heart.

By patience and application we may observe a few facts, however, standing prominently and seemingly substantial enough to remain as useful monuments to guide us through the wilderness of uncertainties to some safe vantage ground.

THE RESULTS IN PRIVATE PRACTICE.

A study of the results of the antitoxin treatment in private practice presents much greater difficulties, for obvious reasons, than does the study of the same subject in institutional practice.

Exactly what the results have been can not be ascertained, as it is not possible to obtain the personal and private statistics of each individual physician as to its results and his death rate; nor would it be wise, since such results might do injustice to thoroughly competent men. If results are particularly good, however, occasionally an individual practitioner will publish such, which seems to be the only way we can obtain them.

The limits of this paper would not permit the quoting of each of the publications by private practitioners, giving the results of their individual practice. The introduction of a few, however, will be necessary. In the present enormous amount of literature and reports on the subject, the results obtained by any one man in private practice can have but little effect on the question.

One year ago, Dr Rosenthal of Philadelphia, in a paper read at the meeting of the Medical Society of

the State of Pennsylvania, arrived at the following conclusions: "Antitoxin is a specific for diphtheria. In early cases, those seen one or two days after infection, no death rate should be recorded. In laryngeal diphtheria, the so-called membraneous croup, antitoxin is especially indicated. It should be used in every stage and at any date of the disease, no matter how late we see the case. Its influence can be proven, for cases of laryngeal diphtheria perish from suffocation long before any toxic symptoms can be manifested." For that reason he strongly urges the necessity of prompt intubation when indicated, even if before the injection of antitoxin.

Regarding the use of antitoxin, he says: "Do not delay or hesitate in this disease because the case is not so bad, or because it might get well without, but use it at once; the earlier it is used, the more certain its success."

This and similar sentiments from other sources, and the very logical character of the theory of antitoxin treatment, based as it was on laboratory experiences, necessarily made an impression upon thinking physicians, and Dr. Rosenthal was not alone in this radical and sweeping position. It represented pretty fairly the sentiments of the writers on antitoxin during the winter of 1894-5.

Three days ago I wrote to a leading antitoxin firm to send me the latest data in favor of antitoxin, as I wished to use it in a paper.

This recent literature received consisted of a reprint from the *Atlantic Medical Weekly* for March 21, 1896. In this paper Dr. Rosenthal says, in speaking of the number of cases treated with antitoxin, "I have treated seventy-eight cases of diphtheria with but two deaths."

It is important to state, however, that Dr. Rosenthal has found that mercury is equally as good a specific for diphtheria as antitoxin, according to the *Medical and Surgical Reporter* of June 13, 1896, for at the Philadelphia County Society's stated meeting May 27, 1896: "Dr. Rosenthal said that *before* the advent of the antitoxin he had *always* considered mercury a *specific* for diphtheria. As early as 1885 he had given calomel in diphtheria but in rather larger doses than had Dr. Flick."

In laryngeal diphtheria he has given as high as five grains every hour—in fact, he has given as high as 120 grains to a child five years old, in twenty-four hours, nor did he notice that the child showed any of the physiologic action of the calomel. He was led to believe that to ptyalise a child who suffered from diphtheria was an impossibility, and he not only gave such large doses of calomel to these children, but he has used at the same time corrosive sublimate in enormous quantities, having introduced 1-500 solutions into the child's nostrils, and swabbing out the fauces with it, probably introducing into the body of the child about a grain of corrosive sublimate, inside of twenty-four hours.

If the doctor had deaths occur under the above treatment I believe he would have said so, as it was a vital point at the time, just as important as to state the death rate under antitoxin, and if he has treated seventy-two cases since the advent of antitoxin, he must have treated a great many more before, with as good or better results, or we will have to leave his evidence out altogether.

Dr. S. S. Haldeman, of Portsmouth, Ohio, in a paper read before the Ohio Medical Society, on May 28, 1896, says:

"I have had an experience of eight months in the treatment of diphtheria with antitoxin, embracing the administration of the remedy to seventy cases of the disease, several of them bacteriologically examined, and all presenting the usual well marked signs and symptoms of the disease, and occurring during an epidemic of a severe type, characterized by a high rate of mortality where the antitoxin was not employed in the treatment, without losing a case treated."

He used it for the purpose of immunizing in twenty-seven cases that had been exposed to the disease, with the desired result of preventing it in all but three cases. In these, the disease began before the end of the third day after immunization.

He also stated: "That in a child five years old he had used the antitoxin for the prevention of the disease, the child being perfectly well. The child died in four minutes. Other children injected at the same time were not injured by the antitoxin." He says: "As to the cause of the fatal result, it is not clear to my mind." He said further: "The wide adoption of antitoxin as a remedy in diphtheria enables one to draw some useful conclusions as to its value. Yet I speak with some caution and reserve, with my limited experience of the remedy, and the results in my own practice have led me to wonder if it were really the treatment with antitoxin, or the non-employment of remedies, such as chlorate of potassium internally, and the local irritants to the diseased parts, that had something to do with the uniform and rapid recovery of my cases."

"Usually in conjunction with the injection of antitoxin, I would give calomel freely, and a prescription combining a few drops of tincture of ferric chlorid in glycerin and syrup, to be given hourly." "After exfoliation of the membrane and the subsidence of fever, I would give small doses of quinin and strychnia every four hours, to a child one year old, and order this continued for not less than three or four weeks. Of the various local applications administered, I think most of that of Professor Loeffler. For a young child I have diluted the solution with alcohol and water, and directed that the mouth be swabbed out with this preparation, but in the case of older children and adults would advise the use of the solution in full strength. The preparation consists of menthol, 2½ drams dissolved in 9 drams of toluol, one dram liq. ferri. chlorid, and alcohol, 2 ounces."

He used local disinfectants to prevent or limit the growth of bacteria in the throat and supporting treatment. He had but one case with laryngo-stenosis.

Query: Which one or two of the above remedies cured the disease?

It is well to remember that Professor Loeffler cured seventy-one consecutive cases of genuine diphtheria in 1894 with the same remedies that Dr. Haldeman used (except the antitoxin), during an epidemic, the general mortality of which was 28 per cent. (See Loeffler's report at the 8th International Congress of Hygiene and Demography, held at Budapest, Sept. 1894.)

THE USE OF ANTITOXIN IN GENERAL PRACTICE IN CAMDEN.

Since the introduction of antitoxin, July 5, 1894, (it is claimed by Dr. Robinson) it has not been very extensively used in Camden. As far as I can learn the number of cases in which it has been used would not

exceed one hundred, and by quite a number of physicians.

Last May Dr. McAllister reported, in private practice, ten cases with two deaths, or 20 per cent., and at West Jersey Orphanage, nineteen cases with no deaths.

Dr. O. W. Bramer has had thirty cases of diphtheria treated with tincture chlorid of iron internally, and local antiseptic sprays of creolin without a death. He tried antitoxin in three cases, no worse than some of the others, with one death, a mortality of 33 per cent.

One means of ascertaining the results of the new treatment outside of hospitals, that we can use at present, is to take the general returns of the disease from all sources of private practice, ascertain the mortality and compare with an equal number of cases returned by private practitioners, not using antitoxin, and ascertain the death rate. In this method, however, there are two sources of error. One is the difficulty in knowing to what extent the antitoxin has been in general use, and in ascertaining whether the two sets of cases were in all respects sufficiently similar as to the prevailing type of the disease and their environment. All the official returns available, however, are composed of both private and institutional practice, no attempt being made by the boards of health to keep separate lists.

The results of treatment in 10,240 cases of diphtheria in the German hospitals and in private practice were recently reported to the Society for Internal Medicine by Professor Ulenburg. Of this number 5,790 were treated with the antitoxin serum, with 552 deaths, a mortality of 9.5 per cent. for all ages; 4,450 were treated by other methods with 652 deaths, a mortality of 14.7 per cent.

The German government is interested in the sale of antitoxin, and most of these statistics are prepared by government officials. It should be noted that most all the literature on the subject is being furnished to the profession by manufacturers and importers of antitoxin and I am sorry to find they sometimes leave out unfavorable reports, as I have ample proof.

It is worthy of note that foreign statistics, especially the institutional, are so different from ours in their results that there can hardly be any comparison. For instance, the high mortality averaging from 50 to 75 per cent. claimed by European hospitals to have been their rate previous to the antitoxin treatment, is something an American practitioner can not understand. Either Europe must be a very unhealthy place, or the professional skill is not equal to the American. Their standard text-books have never made such statements of mortality.

The most decided and brilliant test of antitoxin, and the most favorable so far, seems to have been the one reported by Dr. Otto Katz of results obtained in the Kaiser und Kaiserin Friedrich Kinder-Krankenhaus of Berlin with Schering's antitoxin, in a paper read before the Berlin Medical Society, June 27, 1894. From January 1, until March 14, 1894, the date when the new treatment was begun, there were in 86 cases, 38 deaths, a mortality of 41.8 per cent.

From March 14 to June 20, 128 diphtheritic children were treated with antitoxin, with 17 deaths. In every case Löffler bacillus was demonstrated by means of blood serum culture. Now, if we add to this 13 per cent. the six moribund cases that were received at the hospital at the same time, it would give us a mortality of 19.21 per cent., as against 41.8. The above are the celebrated "brutal figures" which converted Professor Virchow.

The other treatment has remained the same that it was before the injection method was introduced. Local applications, sprays and salves were used as before. Tracheotomy or intubation was done for the same indications. When the antitoxin ran out in July in this institution the mortality rose to its usual high average and fell again on the renewal of the antitoxin treatment, *but the average of deaths* per year in proportion to population *is no less* than it was before the advent of antitoxin, though the remedy is said to be in pretty general use in Berlin.

To return to the United States: In Boston, during the year 1895, antitoxin period, 588 deaths occurred, or 11 for every 10,000 inhabitants. For fourteen years preceding the antitoxin treatment the average mortality per 10,000 of population was 9. In New York, antitoxin treatment 1894-95, 3,993, or 10 deaths for every 10,000 inhabitants. During the fourteen years preceding the antitoxin treatment the deaths averaged each year 10 per every 10,000 inhabitants, which is about the same as it was after the introduction of antitoxin. The same is true of Brooklyn. There were 1,139 deaths from diphtheria in Brooklyn during 1895, or 10 for every 10,000 inhabitants. In 1890, before the antitoxin treatment, there were 902 deaths, which is 10 per every 10,000 inhabitants. These statistics are from official returns of the health department.

In Camden, N. J. (from official records):

Year.	Cases.	Died.	Death rate. Per cent.	Rate per 10,000 inhabitants.	
1893	285	66	23	16.60	
1894	314	61	16	10.10	
1895	168	29	18	4.50	(antitoxin)
1896, to June 15	117	20	18	6.40	

HOSPITALS.

In the Boston, New York and Philadelphia Municipal Hospitals, antitoxin has been applied thoroughly for a year. It would be fair to presume that more light cases were sent to the hospitals since the advent of antitoxin than before, as physicians have improved greatly in the last two years in their habit of sending to the health officers notice of their cases. They more fully appreciate the importance of the matter, and health authorities have more vigorously enforced the ordinances. The returns have improved in Camden since the board of health proceeded against several physicians, and such is the case in all the large and progressive cities.

In Berlin, after two doctors were arrested and punished the returns doubled. For a generation the law has been, that all deaths must be returned before burial, but for various well known reasons many cases were not reported, unless likely to die or malignant.

BOSTON CITY HOSPITAL.

Year.	Cases.	Deaths.	Per cent.	
1892	387	185	47.80	
1893	419	203	48.44	
1894	598	266	44.48	
1895	1,566	207	13.21	(antitoxin)

WILLARD PARKER HOSPITAL, NEW YORK.

1888	258	60	23.25	
1889	383	79	20.62	
1890	292	67	22.94	
1891	289	85	29.41	
1892	295	79	26.77	
1893	343	108	31.41	

Year.	Cases.	Deaths.	Per cent.	
1894	699	205	29.32	(antitoxin thoroughly used)
1895	778	190	24.42	"
1896 to May 1	251	58	23.10	"

The death rate at the Willard Parker Hospital was lower in 1889 and 1890 without antitoxin than it was under the antitoxin treatment carefully applied for over a year.

I have visited New York for the purpose of investigating the subject. I find Dr. Winters of the Willard Parker Hospital has carefully investigated and verifies these statements. His impression is that 38 per cent. mortality would fairly represent the actual mortality of Willard Parker Hospital at the present time under serum therapy, if patients who have clinic evidence of diphtheria were subjected to this treatment to the exclusion and elimination of those cases which have no clinic data to warrant the diagnosis of diphtheria. This was the percentage found by Dr. Ewing in such cases in that hospital. In laryngeal cases the mortality is 70 per cent. in this hospital, while in Geneva it is 49 without antitoxin. In the University College Hospital, London, it was 47 per cent. without antitoxin. In Philadelphia Municipal it is 52 per cent.

I have anxiously awaited the criticisms by Dr. J. W. Brannen of the Willard Parker Hospital in regard to the statements and figures given by Dr. Joseph P. Winters (already quoted by me) before the New York Academy of Medicine May 21, 1896, and I expected that he would be able to show many important defects in Dr. Winter's statistics, but I really find that while he deprecates the unfortunate position in which Dr. Winter places the hospital and discusses some of the subordinate issues and even goes so far as Japan for testimony, that he makes no perceptible impression whatever upon the elaborate paper of Dr. Winters, whose figures seem like the Rock of Gibraltar to stand firm and unscathed after the assault. The plain fact remains that the antitoxin treatment has not lowered the death rate, at least in that institution. Nor was *early* treatment by antitoxin better than *early* treatment by other antiseptic practice.

MUNICIPAL HOSPITAL, PHILADELPHIA.

Results for 1895 were as follows: Treated with antitoxin 302, deaths 85, rate 28.14 per cent.; treated without antitoxin 404, deaths 105, rate 25.99 per cent.; of the 302 antitoxin cases 51 were intubated, with 27 deaths, 52.94 per cent.; of the 404 non-antitoxin cases 71 were intubated, with 40 deaths, 56.33 per cent.; in favor of antitoxin 3.39 per cent.; of the antitoxin cases 16.88 per cent. were intubated; of the non-antitoxin cases 17.57 per cent. were intubated; in nearly all the cases peroxid of hydrogen was used as a spray locally; in the 404 non-antitoxin cases tinct. ferri chlor. and hyd. bichlor. were used internally; in the 302 antitoxin cases tinct. ferri chlor. was used. The death rate was therefore higher with antitoxin.

LONDON HOSPITALS.

In the Northwestern and Southwestern Hospitals: 1892, 1893, 1894, cases 4,672, deaths 1,187, per cent. 25.4; in all the hospitals, 1895 (antitoxin) cases 2,182, deaths, 615, per cent. 28.1.

What is embodied in the foregoing in regard to antitoxin as a therapeutic agent must arouse in thinking minds a number of reflections. No subject since the earliest dawn of medical science has been so thoroughly and extensively investigated in so short a time as has the use of antitoxin in diphtheria. This is gratifying, for it shows that the science of medicine has emerged from its puerile stage and is advancing to maturity and accuracy. By the enthusiastic and universal application of this method by the profession throughout the world we can settle in one year a question that would have taken 100 years by the slow progress of a few generations ago. Electric transmission of intelligence and statistics have shortened periods of investigation at least 99 per cent.

The results of treatment without antitoxin in the United States seems to be better than in Europe. The results with antitoxin in this country have not been nearly so favorable as have those reported from Europe. The fact is, is that nearly all the instances where antitoxin has been used it has not been relied upon exclusively, but other treatments of the most important and powerful character have been used at the same time.

It is worthy of remark that in all cases where good results have been obtained, antiseptics or disinfectants have been applied to the throat and mucous membrane. With all the mass of accumulated facts, experiences and figures, we will have to wait another year before the question of the value of antitoxin can be fairly and conclusively settled.

To discuss the value of antitoxin as an immunizer would require an amount of space, statistics and time which would make this paper too long. Suffice it to say on this subject, from what I can gather from a fair and impartial investigation of the subject it appears that antitoxin does immunize in the majority of cases, but not longer than about thirty days.

It does not destroy the bacilli of diphtheria at all They seem to remain in the throat the usual length of time, a constant source of danger to other persons, unless local antiseptics be used. Antitoxin is not an antiseptic, you can cultivate the bacilli in it.

A number of cases are on record where antitoxin has been injected as an immunizer, or to cure patients, and has caused their death. These are not sufficiently numerous, however, to forbid its use, provided its claims as a curative agent can be established, as the deaths occasionally occurring from the use of ether are not a sufficient argument to lay it aside as an anesthetic, and there is good reason to believe that carbolic acid or some other foreign substance in the antitoxin has been the cause of these accidents. Nor is there a decided difference in sequelæ.

The theory of the antitoxin treatment appears to be perfect and the treatment seems satisfactory in the laboratory; I have always been a student of the microbe pathology and I still have high hopes of the success of antitoxin; but as Professor Virchow has stated, "Every consideration and theory must give way to the mere brute force of figures;" and there does not appear to be quite enough figures, as yet.

We are no doubt so familiar with the early statistics which came from abroad, inducing the extensive trial of antitoxin in this country, statistics of a very favorable character, during the latter part of 1894 and the early part of 1895, that I have naturally not encumbered this paper with them; as after a year's trial, the latest results are the only figures of real interest and importance, and they do not seem so favorable as we would have wished for. I do not wish to be classed as a partisan in this matter, I am simply an earnest seeker after truth, trying to find the real value of a remedy.

I have great confidence in the results obtained at the Municipal Hospital in Philadelphia, owing to my personal knowledge of the carefulness of Dr. Welch, the physician in charge. I have been using the streptococcus antitoxin in cases that have been brought into the Cooper Hospital with puerperal septicemia but am not yet ready to report on the results.

THE ANTISEPTIC TREATMENT OF DIPHTHERIA.

Nothing could be of more practical value in the science of medicine than results obtained by a physician in general practice and ripe experience upon a common disease, after fifteen or twenty years of careful practice and close observation; I wish to lay before you a presentation of what I consider the antiseptic method of treatment as applied to diphtheria.

In 1877 in my graduating thesis at the University of Pennsylvania (which received honorable mention from that institution) I wrote as follows:

"The evidence that disease may be caused by germs, or at least in some instances, amounts to demonstration; and it should be recollected that low organisms split up their nutrient matter, or pabulum, into new compounds, which in many instances have a powerful effect upon the human system, and may disturb their functions as long as they are generated within it. When we view the practice of medicine and surgery with reference to this subject, we find that all those meteorologic, all those hygienic conditions, all those medical and surgical appliances and means which are most antagonistic to the form, growth and development of living germs and low forms of life, have been the most effective in the treatment of contagia, even before the laws of germ development and their relation to disease were so well understood as at present, practically (owing to the accuracy of clinical observations) contagia were treated in many instances as if their true nature had been known.

"Quarantines were established and disinfectants quite intelligently used; but now, guided by a better knowledge and understanding of the nature of zymotic disease we are able to lay down a foundation of broad principles upon which to erect the superstructure of a more perfect practice."

Since that time pathogenic germs or bacilli have been so universally admitted by the profession to be the cause of the zymotic diseases that it can no longer be a debatable point in pathology.

You can not have diphtheria without the presence of this microbe. Like all other vegetables, and especially the low forms of life, it is necessarily subject to variations in the character and amount of its poisoning products; for the bacillus after all is not the real poison which causes such disastrous consequences in the human system, but the ptomain which it produces.

Various staphylococci and micrococci found in connection with this germ in diphtheritic cases no doubt produce some of the lesions found in the neighborhood of the diphtheritic points, especially the secondary affections.

IMMUNITY.

It is claimed by good authorities that an attack of diphtheria does immunize a patient. My own experience is that I have never known two well-marked attacks of severe diphtheria in the same person. I have seen two cases followed in a year or two by a lighter attack.

The literature on the subject would cause me to think that some must have had a different experience.

THE MEMBRANE.

Formation of the membrane.—The formation of the membrane is not well understood. It appears to be an exudation of fibrin from the capillary blood vessels, under a high state of irritation and congestion, in the same manner as it is produced by any other irritation or congestion, and may be seen sometimes thinner and sometimes thicker in stumps that are left open to "glaze," in peritonitis, croup, etc. Now the question arises, as to the nature of those peculiarly malignant cases of diphtheria that show intense intoxication, and even die before any visible membrane is formed. It seems quite probable that large surfaces of the pharynx and nasal cavity have been covered by the bacillus in very active and virulent form before the false membranes are seen; so that sufficient toxin has been absorbed into a susceptible system to produce fatal symptoms before the exudation has had time to form.

Pseudo-membranous croup.—I believe this to be an entirely different and distinct disease, clinically and etiologically. While the Löffler bacillus is always found at some stage of true diphtheria, it is not found in croup, except as a rare and accidental visitor. The microscopic and clinical pictures of these two diseases are totally distinct. Croup usually begins at the larynx, little or no fever, usually progressive and fatal, simply by a mechanical stenosis of the larynx, occasionally extending into the bronchi, seldom visible in the pharynx, and without the Löffler bacillus. Diphtheria on the other hand, usually begins with fever, symptoms of intoxication and one of the first things seen on examination is the exuded patch in the throat, often tinged a little yellow. No doubt many cases of true diphtheria were formerly treated as cases of croup, or have been returned as such after death. I do not believe that croup is a contagious disease. Never but once in nineteen years have I seen two or three children with croup at the same time in one family.

At present I am inclined to believe that membranous croup is not due to any bacillus, but to severe local congestion or a disturbed circulation, caused by exposure of parts of the body to cold and dampness.

Follicular tonsillitis is sometimes mistaken for diphtheria, it differs clinically and microscopically, and I think we are rapidly approaching a period when it will be demanded of the entire profession to make use of the microscope in differentiating these closely allied throat diseases, and I believe that the Board of Health has done a good thing in ordering all cases of supposed croup to be reported to the Board in less than twenty-four hours.

LOCAL QUARANTINE IN DIPHTHERIA.

My experience has been that it is easy to quarantine a case of diphtheria in a room where there is a large family and many children, successfully preventing extension of the disease to the other inmates, as I do not think that the germs spread more than a few feet in the air at a time, but may be rapidly disseminated by contact or fomites. But, in two instances where I had successfully quarantined a case in the house from the rest of the family, in about a year afterward a number of the family were taken with the disease, not having been exposed elsewhere; so that we were driven to the conclusion that quilts or

something that was in the room during the previous sickness had not been properly sterilized, and the germs had been animated after this long period.

This leads me to a very important reflection in regard to quarantine in a city, namely, if the case of diphtheria in a house was properly quarantined, why could not the family be permitted to go to their work, pursue their usual avocation, and not be submitted to the objectionable fate of being compelled to remain in that house during the disease; and, since the disease is more likely to be carried, after the general quarantine has been removed from the house, by the inmates for months or years, is it not equally safe with proper room quarantine to allow the inmates egress and ingress during the existence of the case in the house?

Since the authorities do not thoroughly and persistently quarantine a house usually during all epidemics, the inmates of the house go out and the neighbors intermingle, it might be more practicable and agreeable to a community for a board of health to quarantine a portion of the house. This procedure has many things in its favor.

How is the bread winner to pay his rent, when he has a family? How can he pay the doctor?

Under proper conditions he could see his child's face at evening if he is anxious to do so without carrying the disease.

Intubation vs. tracheotomy.—I have performed both intubation and tracheotomy in a number of cases (I always prefer intubation) and I have had recoveries take place with intubation under conditions which I believe would have proven fatal had tracheotomy been performed; however, we have tracheotomy to fall back on in case intubation fails.

LOCAL TREATMENT.

The symptoms are usually not very pronounced before the diphtheritic "patches" are visible. I make the bacteriologic or culture test in all cases when possible. From the foregoing statements it may be seen that I hold that this disease is essentially local and external; for anything on the mucous membrane practically is not in the system, but the products of the bacillus being absorbed into the system as fast as produced, cause the general and constitutional symptoms.

Basing our treatment upon the views above stated, I have for over 15 years held, that the rational procedure, in combating this disease was simply to destroy the bacilli where they are located on the mucous membrane of the throat or elsewhere, by the proper applications of antiseptics or germicides and secondly, meeting the poison in the blood by such therapeutic means as physiologically and chemically were the best antidotes for it.

Now, while many scientific and learned physicians have followed these lines in treating diphtheria, they have so frequently been disappointed in their results and struggled along with a high mortality (in many cases, 30 to 40 per cent.), yet I have always contended that this is the correct line of treatment, and will give the best results if accurately and thoroughly carried out.

The important consideration, therefore, is what local and general medication to use, and equally important, the method of applying and using these remedies; for I believe that the failure to cure by this practice will be due either to a want of proper applications of the treatment, or to the fact that it has been commenced too late in the disease.

If you will refresh your knowledge of anatomy by examining the drawings of the interior of the nose, pharynx and larynx you will conclude that no treatment applied by the ordinary swab or probang, could

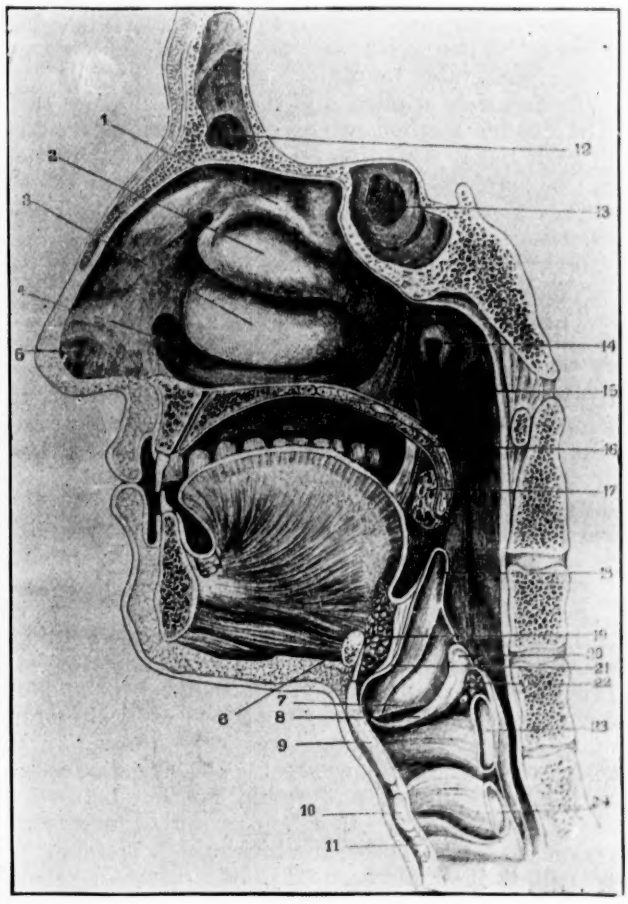

FIGURE 1.—VERTICAL SECTION OF HEAD, SLIGHTLY DIAGRAMMATIC.

1. Superior turbinated bone. 2. Middle turbinated bone. 3. Lower turbinated bone. 4. Floor of nasal cavity. 5. Vestibule. 6. Section of hyoid bone. 7. Ventricular band. 8. Vocal cord. 9 and 23. Section of thyroid cartilage. 10 and 24. Section of cricoid cartilage. 11. Section of the tracheal ring. 12. Frontal sinus. 13. Sphenoidal cells. 14. Pharyngeal opening of Eustachian tube. 15. Rosenmüller's groove. 16. Velum palati. 17. Tonsil. 18. Epiglottis. 19. Adipose tissue behind tongue. 20. Arytenoid cartilage. 21. Tubercle of epiglottis. 22. Section of arytenoid muscle.

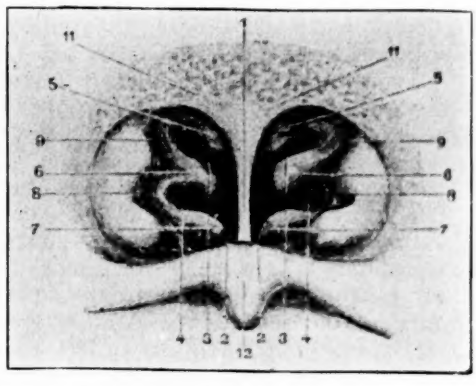

FIGURE 2.—RHINOSCOPIC IMAGE.

1. Vomer or nasal septum. 2. Floor of nose. 3. Superior meatus. 4. Middle meatus. 5. Superior turbinated bone. 6. Middle turbinated bone. 7. Inferior turbinated bone. 8. Pharyngeal orifice of Eustachian tube. 9. Upper portion of Rosenmüller's groove. 11. Glandular tissue at the anterior portion of vault of pharynx. 12. Posterior surface of velum.

by any possibility reach the disease at its most dangerous points, and consequently must be very inefficient in nasal and laryngeal cases. Even the physician could not apply the treatment thoroughly in an adult, and the idea of applying it in a struggling child is preposterous. Moreover, since the treatment has to be applied every hour at least, it must be left to the family to be carried out. It is therefore utterly impracticable, and I have found where it has been tried it did not accomplish the results. There would be a considerable mortality.

Antiseptics applied by the nasal douche, after Thudicum's method, do reach the nasal cavity thoroughly, but it is so difficult to accomplish that it can not be employed with children in private practice to any great extent, even if the physician superintends its use.

Gargles are of little or no use in the nasal and laryngeal cases.

The spray or atomizer therefore remains the only feasible method of applying antiseptics to all parts of the affected mucous membrane. To the recognition of this fact, and its early and thorough adoption together with an efficient and pleasant antiseptic remedy to be used in the atomizer I must attribute largely my success in the treatment of this disease.

I acknowledge that it is with the profoundest diffidence and respect for the criticisms of my medical brethren that I advance the following statement:

For over ten years, including 100 cases, I have not had a death from diphtheria, unless a case that died about twelve years ago be included; connected with this were three other physicians and I have never been convinced that it was not a case of membranous croup. A white membrane was very distinct in the pharynx, extending downward. I early practiced the antiseptic treatment and would not be justified in experimenting with other things, unless my results change, but I never use the bichlorid of mercury, nor do I think it should be used in this disease; because its action though beneficial is almost wholly due to its local effect upon the bacilli in the throat. Many cases, especially in young children, have been injured by the too free use of this substance. Other antiseptics, such as carbolic acid, salicylic acid, sesquichlorid of iron, are equally efficacious and may be used in ample quantity without the same amount of danger to the person.

Since we usually depend on the laity any treatment that can be properly and thoroughly applied, even to young children, must have vast advantages over any other. In severe cases I have all the mucous membrane thoroughly sprayed through the nose and mouth at intervals of fifteen or twenty minutes, or even longer, about fifteen seconds at a time, the child breathing as naturally as possible during the application. The spray comes in contact with every part. The membranes and symptoms rapidly disappear. On several occasions I have suspended local treatment after their disappearance; and in twenty-four or forty-eight hours the membrane would again spread over the throat, a few bacilli having been left alive, disappearing again promptly on resuming the local treatment, thus demonstrating its efficacy. It is necessary to see that the atomizer works properly and that the attendant applies it thoroughly.

Professor Loeffler claims that the disease being entirely due to germs lying in the throat, consequently in a position where they could be reached by local antiseptics, could be readily cured by local application, and instances seventy-one cases of diphtheria treated exclusively by local antiseptic applications, without a single death, in his private practice. This statement was entirely consonant with my experience and practice, instituted ten years before his great discovery of the germ.

If it be true (and I do not think that it can be successfully disputed now, that diphtheria is due to the presence of germs in the pharynx), why would not germicides destroy them? For we know that we possess a number of antiseptic or germicidal medicines that are invariably fatal to germs and can be used in quantities sufficient for that purpose without any detriment to the patient. Holding the view of the disease that I have advanced, I could never understand why a local treatment would not be all that was required.

Proffessor Loeffler, after various experiments, suggested a combination of:

Menthol cryst	10	gm.
Toluol q. s. ad fac	36	c.c.
Alcohol absolute	60	c.c.
Liquor ferri sesquichloridi	4	c.c.

I have found the the formula of Professor Loeffler to be disagreeable to the patient, while the one I use has not that objection and is quite as efficient.

Acid. acet. dilut	fl.℥ii
Pot. chlorat	℥ss
Acid. carbol	gtt.i
Tinct. ferri chloridi	gtt.v
Pulv. Alumen	gr.v
Acid. salicylic	gr.i
Glycerin	fl.℥ss
Aqua ros	fl.℥ss
Aqua q. s. ad	fl.℥iv

Misce. Sig. Use as directed.

It is a clear, permanent liquid of a purple color.

In making application to the throat of diphtheritic patients the doctor or nurse may use a disc of glass held between his face and the patient, to prevent infection from the sudden coughing and spitting of the patient.

I always give tincture ferri chloridi in large and frequent doses, and I believe it produces favorable conditions of the blood, as it does in many other cases of septicemia, notably erysipelas, which often disappears under this treatment alone.

One of the benefits derived from this remedy is its local action while being swallowed.

Result under the local antiseptic treatment: Benjamin, 100 cases, 100 recoveries; Loeffler, 71 cases, 71 recoveries.

I will not weary you with a repetition of illustrative cases. I hope the profession will give this treatment a fair trial and report on it.

CASES IN POINT.

I was called to attend a girl, 10 years old, whose brother, the only son, had died of the disease the day before. The patient had diphtheria in a very grave form; pulse 140, temperature 104, respiration 40, and the throat covered with a thick membrane. She was placed under treatment. Marked improvement took place in twenty-four hours. At the next visit, the patch of membrane had diminished in size, the pulse was 120, the respiration 25. She was well in eight days, running about the house.

In another part of the town I was called where five children had the disease, as well as mother and her

baby, about six months old. Three children across the street had just died and were awaiting burial. Others in the neighborhood had the disease. All these cases rapidly recovered. I might go on until it would become monotonous, relating cases of which I have records. My former assistant, Dr. W. I. Kelchner, reports seventy-five consecutive cases by this treatment during the past three years, without a death.

The more malignant the case the more brilliant the results that I have obtained by this treatment. When I seek an explanation of this phenomenon it seemed quite natural that it should be so, for the abruptness and urgency of the onset of the disease causes the patient to send for medical assistance promptly, and the severe symptoms being due to the large number of germs spread over the mucous membrane of the pharynx and throat, the local antiseptic treatment is effective before sufficient time has elapsed to protect themselves by a false membrane.

This was illustrated in the case of a woman who was taken with the most malignant symptoms, after having just buried her three children who died with the disease on that day. She was practically well in forty-eight hours after treatment began, and attended to her household duties on the fifth day.

If it be true that we can save our patients by local antiseptic treatment, properly applied early, the local treatment will displace the antitoxin treatment in general practice. Patients can go about with less danger of spreading the disease when convalescing, since their throats are sterilized and no bacilli can be found by culture tests.

Microscopic and culture tests should be made before using the treatment, as generally the bacilli disappears after using the antiseptic remedy.

215 Cooper Street.

THE STATISTIC EVIDENCES OF THE VALUE OF VACCINATION TO THE HUMAN RACE, PAST, PRESENT AND FUTURE.

Read before the American Medical Association at the Jenner Centennial Celebration, held at Atlanta, Ga., May, 1896.

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(*Continued from page 811*).

Proposition 7.

In some communities and even nations a greater number of vaccinated and unvaccinated persons are attacked with smallpox. Anti-vaccinationists parade such instances and use such data to bolster up their ridiculous assertions that such facts show the utter futility of vaccination. Without a single exception every such effort is based upon the most shameful perversion of facts.

Let us take Great Britain to illustrate this proposition. It is true that in the epidemic of smallpox, 1871-72, a greater number of vaccinated died than those unvaccinated. But does this fact prove the failure of vaccination! By no means. Why? The vaccinated portion of the population number thirty to forty times that of the unvaccinated. In 1872 there were 300,000 of children under 5 years of age in Great Britain (Sir Lyon Playfair, *loc. cit.*). These were divisible into two classes, vaccinated and unvaccinated. The vaccinated were thirty to forty times more numerous than the unvaccinated. Now for results of vaccination. In the vastly more numerous class—the vaccinated—the smallpox deaths numbered 1,780, while among the fractional portion of the population—the unvaccinated—the deaths number 413. According to Dr. Playfair the mortality from smallpox was from 120 to 160 greater among the unvaccinated than the vaccinated. The Registrar General of Great Britain showed that taking the whole community of the kingdom, there was only one death among the vaccinated for every forty among the unvaccinated.

Let us take the epidemic of smallpox in London in 1882. During that year 2,317 deaths were registered from smallpox[35] (vide Registrar General's Annual Summary for 1882). Of these, 524 were stated to have been vaccinated and 962 unvaccinated, while regarding the condition of others as to vaccination, no statement was made. It is tolerably certain that among the population of London not more than 10 per cent. are unvaccinated, and if 10 per cent. be supposed to be doubtfully vaccinated there will remain 80 (this estimate is certainly well within the true proportion) per cent., presenting clear evidence of vaccination. If, then, the vaccinated and unvaccinated had been equally liable to fatal smallpox, the former would have died at the same rate as the latter, and since 962 of the unvaccinated died there would have died 7,696 among the vaccinated. But the actual number of deaths among the vaccinated was 524; hence it is clear that the vaccinated and unvaccinated were not equally liable to death from smallpox.

Moreover, if the mortality among children be considered, the difference between vaccinated and the unvaccinated appears still more striking. The deaths from smallpox during 1881 included 27 of vaccinated children under the age of 5 and 368 of unvaccinated children under that age. If unvaccinated and vaccinated children would have died at the same rate as the unvaccinated, *i. e.* (taking the proportion of vaccinated and unvaccinated as previously stated) the deaths among the vaccinated children under 5 would have been 2,944. But the actual number was 27, and it is therefore obvious that unvaccinated children are liable to fatal smallpox to an enormously greater extent than vaccinated children; or, in other words, vaccinated children are to a larger extent protected from fatal smallpox.

Dr. Seaton, in Annual Report of the Local Government Board of Great Britain, 1874, says on this subject:

But if the actual number of smallpox deaths in persons above puberty who had been vaccinated were equal to, or even exceeded, that which occurred in persons who had not been vaccinated, it must be borne in mind that the proportion of our adult population which is protected against smallpox by vaccination is at least from twenty-five to thirty times as great, and much more probably from fifty to sixty times or more as great, as that which is unvaccinated. The relative number of persons who now-a-days attain manhood or womanhood without having been vaccinated is very small. Examination of the young men who are recruited for the army has shown for many years past that, putting aside the small percentage who are marked with smallpox, the proportion of the remainder who do not present distinct marks of having undergone vaccination averages for the whole of England 3.9 per cent. of those examined, and for London separately, 2.8 per cent. As these small proportions include all doubtful cases, it is clear then that somewhat considerably more than 96 per cent. of those in England, or than 97 per cent. of those in London only must have been vaccinated. Now recruits, I apprehend, are not generally drawn from that class of the population which has been the most cared for; and there is, therefore, a reasonable probability that the proportion of the whole adult population of England which is thus protected against smallpox is much larger. But even if the full proportion just given, or more than that proportion, be applied to the adult population generally—4 per cent. being taken as unvaccinated and 96 per cent. as vaccinated—it is clear that with equal actual mortality among the two classes, the relative mortality of the former would be twenty-four times that of the latter. The figures, then, are conclusive that vaccination as it was practiced in this country fifteen years ago and upward, instead of failing to protect persons from fatal smallpox after they had grown up has, in the immense majority of cases, very effectually protected them.

But proof of Proposition 7 does not rest alone upon statistics as to the protective influence of vaccination in children. Let us inquire as to the value of vaccination upon all classes and ages of population under recent so-called failures to such extent as to have shaken the confidence of some few former advocates, and supplied vaccinophobists with what they term "an arsenal full of facts testifying to the utter futility of the measure." Let us take the most widespread and fatal epidemics of smallpox which have fastened their remorseless fangs into the bodies of communities since compulsory vaccination, and see if we can compare the results of vaccination and non-vaccination. This is the only rational test. Ask vaccinophobists to select their own times and places of occurrence of smallpox for this demonstration, and they will point to the epidemic of smallpox in Great Britain from 1870 to 1873, and

[35] The Influence of Vaccination in the Prevention and Diminution of Mortality from Smallpox, presented to the Parliamentary Bills Committee of the British Medical Association. By Dr. Ernest Hart, Chairman of Committee.

with pride declare that in this epidemic we have an illustration of the futility of the prophylactic powers of vaccination. We accept the issue thus made, and shall demonstrate the wonderful prophylactic power of vaccination in this time (their own selection), to the satisfaction of any sane or reasonable man. Of this epidemic, Dr. Seaton, who was specially detailed to investigate it, says: "The epidemic of smallpox which began in England toward the close of 1870 and terminated in the second quarter of 1873, was part of a general outbreak of that disease, of world-wide diffusion, marked wherever it occurred by an intensity and malignancy unequaled by any previous epidemic of the disease within living memory. The outbreak seems to have begun in France about a year before it manifested itself in the United Kingdom. In the last quarter of 1869 it was already making considerable progress in Paris. Early in 1870 it prevailed in Orleans, Bordeaux, Lyons and other large towns, and in the course of the year extended with great mortality over nearly the whole of France. Except, however, in so far as it was directly conveyed by the French prisoners to various places in Germany, there was very little extension beyond France till toward the close of 1870. The epidemic then manifested itself in London, in two or three of the chief towns of Holland, in Milan, at Geneva and in some other places, becoming thereafter rapidly diffused over a great part of Europe. During 1871, England and Scotland, Holland, Prussia and the whole north of Germany, Italy and Spain felt the full force of the epidemic, and the first beginnings of its ravages were experienced in some of the other countries of Europe, as in Ireland and Denmark. In the course of this year it spread beyond Europe to various places in Africa (where it raged along the Gold Coast), to the West Indies and to North America. During 1872, while still continuing its course in most of the countries it had attacked in 1871, it made further extensions over the continent of Europe, invading Austria, Hungary, Russia and Finland, over Africa and over North America; it spread, also, to South America and the South Sea Islands, and it invaded various places of the East. In 1873 the greater part of its course in Europe had been run, but there were yet, during the earlier parts of the year, various countries and districts and important capitals, as St. Petersburg and Vienna, still under its full influence. By the middle of 1873, however, the pandemic extension of the disease in Europe may be considered to have terminated, and smallpox generally has since then been quiescent, though there have been some considerable local outbreaks."

Here, then, is, we hope, an epidemic of smallpox of widespread prevalence and malignancy sufficient to satisfy these anti-vaccinists. Now for the lessons taught by this truly frightful epidemic, as applied to great Britain. Seaton says: "The varying intensity of different epidemics of the same disease is, indeed, a well-known fact, and had been illustrated as regards smallpox, at various times, at the hospitals set apart for the treatment of that disease in London; the ordinary mortality of natural smallpox as therein observed, 35 per cent. of the cases admitted having in certain epidemics been known to mount as high as 47 per cent., and that of post-vaccinal smallpox to increase from 7 to 10 per cent. But no experience which had been acquired in the hospital had led to the expectation that the ordinary rate of mortality to attacks would by any epidemic influence be nearly doubled. Yet such was the case in 1871 and 1872, in the former of which years the deaths from the natural disease were 66.2 per cent. and in the latter 77 per cent. of the natural cases, or in the two years combined (for the admissions in 1872 were too few to form by themselves a proper basis of comparison) 67.5 per cent. of such cases. This result is stated by Dr. Munk and Mr. Marson in their report for 1871, to have been due 'to the severity of the disease, and especially to the number of cases of malignant smallpox, the proportion of which to the other cases has been very largely in excess of anything within the experience of either of your medical officers.'"

"In the hospitals of the Metropolitan Asylum district, in which the cases admitted would be of a more average character, the ratio of deaths to admissions was extraordinary, amounting to 44.80 per cent. among the unvaccinated and 10.15 per cent. of the vaccinated. The ratio in the hospitals of provincial and foreign towns generally has ranged from 40 to 50 per cent. among the unvaccinated and from 8 to 10 or 11 per cent. of the vaccinated—enormous rates, and attributed everywhere to the same cause, viz., the unusual proportion of malignant, black and hemorrhagic cases. In several of these hospitals the rates were as high or higher than in the smallpox hospital of London, as in the 'Barackem Lazareth auf dem Tempelhofer Felde,' at Berlin, which were used as additional smallpox hospitals during the epidemic in that city, and in which the mortality among the unvaccinated was 81.25 per cent. and among the vaccinated 14 per cent., and in the hospital at Leipsic, in which the mortality among the unvaccinated was 71 per cent. and among the vaccinated (including doubtful cases) between 9 and 10 per cent."

Let us now compare the mortality of this epidemic with that of other recent epidemics of the disease. Here it is: "In the thirty-three years which at the time this outbreak commenced had elapsed, from the first establishment in England of a complete system of registration of the causes of death, there had been abundant illustrations of the varying fatality of smallpox epidemics, but it had been supposed by many—quite erroneously as it now appears—that that period had been sufficient to exhibit the limits of the fluctuations. Only twice since the close of the great epidemics of 1837–41 had the smallpox deaths in England exceeded 7,000, viz., 1852, when they were 7,320, and in 1864, when they were 7,684. And though the epidemic of 1837–41, just referred to, had exhibited a mortality enormously in excess of these numbers (the deaths in 1838 alone having been 16,268), yet as this was anterior to any vaccination laws and at a time when the proportion of the population which was unprotected by vaccination was many times as great as it is now, a recurrence of any such considerable mortality as was then observed had been quite outside ordinary calculations. The mortality of the 1870–73 epidemic has not indeed been by any means so great in proportion to population as was that of 1837–41, but it has approached it more nearly than had appeared possible. During the 1837–41 epidemic there were registered from July 1, 1837, the termination of the epidemic in 1841, 48,012 smallpox deaths in a mean population of fifteen and one-half millions; during the 1870–73 epidemic, 44,433 deaths in a mean population of nearly twenty-three millions. The proportionate mortality therefore of the epidemic of 1870–73 has been less than two-thirds that of 1837–41."

What of the mortality of smallpox in this epidemic of 1870-73 compared with the smallpox mortality of the last century? Dr. Seaton says of it: "The mortality of this epidemic was, as I have said, such as has not been known in England for thirty years, and has at least proved a complete answer, if, indeed, an answer had been required to the notion which had of late years been ventilated by some that smallpox was a disease naturally tending to extinction. . . . But, before proceeding further, it seems very important that it should be noted that the mortality of this epidemic, alarming as it has been, has not approached what was the usual annual smallpox mortality of the kingdom at the time when vaccination was unknown. The annual average smallpox death rate of that period—not, be it observed, the death rate of a particular year of special prevalence of the disease, but the annual average death rate—was more than three fold the death rate of this, in our time, quite exceptional outbreak. The estimated annual smallpox death rate of England in the last century was 3,000 per 1,000,000 of population; the mean annual death rate of this epidemic was 928 per 1,00,000, having in 1871 been 1,024 and in 1872 833 per 1,000,000. The average annual smallpox death rate of the metropolis in the pre-vaccin period was from 400 to 500 per 100,000 of population; the mean annual death rate of this epidemic was 148, having in 1871 been 243 and in 1872 54. And if an average be taken of the smallpox mortality of England for the whole twenty years (1854–73) during which there has been a compulsory vaccination law, a period which includes the whole of the recent epidemic, the annual death rate is found to be 245 per 1,000,000 of population, or less than a twelfth of the rate of last century."

And yet in the face of such facts as these Mr. P. A. Taylor, M.P. of England, seriously asserts:

"That the practice of vaccination affords no national protection from smallpox, and has had no effect whatever in preventing or diminishing smallpox epidemics. That the mortality among vaccinated smallpox patients is as great as among unvaccinated."

I have no patience with a man who would seriously advance such ridiculous nonsense into the arena of scientific discussion. I would as soon enter into debate with my horse as with such a man.

PROPOSITION 8.

1. Vaccination performed in infancy in the best manner, confers upon the majority of these individuals absolute protection against smallpox during life.

2. In not a few instances (the proportion being unknown) individuals properly vaccinated, at or or about the age of puberty partially or wholly regain that susceptibility to smallpox which vaccination had once extinguished in them.

3. In the overwhelming majority of instances of individuals contracting smallpox after primary vaccination the disease is so mitigated as to be practically devoid of danger to health or life.

4. The vast majority of cases of severe post-vaccinal smallpox result from careless or inefficient smallpox.

Inasmuch as in a considerable proportion of cases smallpox occurs a second time, and in rare instances, a third and even a fourth time in individuals, it is expecting too much of vaccination to demand that post-vaccinal smallpox should not be found in a considerable portion of those who had been previously thoroughly well vaccinated.

It must be confessed that the illustrious Jenner at first claimed that a successful vaccination afforded the individual absolute protection against smallpox. In his work, "An Inquiry in the Causes and Effects of the Variolæ Vaccinæ," June, 1798, he says: "But what renders the cowpox virus so extremely singular is that the person who had thus been affected is proven afterward secure from the infection of the smallpox."

Further experience caused Jenner to modify his views on this subject, as follows: "Duly and efficiently performed vaccination will protect the constitution from subsequent attacks of smallpox as much as the disease itself will. I never expected it would do more, and it will not, I believe, do less."[36]

It has long been demonstrated that the great benefactor of his race was mistaken even in his later estimate of the prophylactic powers of vaccination. Primary vaccination is not and never was as fully protective against smallpox during life as a previous attack of smallpox. As early as 1807 numerous cases of post-vaccinal smallpox were reported in England. The Royal College of Physicians investigated the matter and found that some of the reported cases were well founded, but said: "The number of alleged failures has been surprisingly small, so much so as to form certainly no reasonable objection to the general adoption of vaccination." Within the next few years the proportion of post-vaccinal smallpox was found to be increasing, and in some epidemic seasons they presented a very alarming total.[37] It was claimed that these cases of post-vaccinal smallpox were not chargeable to vaccination properly performed, but were due to spurious vaccination. But this claim was disproven to such an extent as to perplex and disappoint many advocates of vaccination. Injudicious friends of vaccination endeavored to prevent publicity being given to the facts, and the enemies of the measure decried it with the zeal which has ever characterized their fight upon this, the most beneficent gift to man. Simon very properly says: "At no moment in the progress of Jenner's discovery had impartial investigation been needed more than now; for, partly by the facts themselves and partly by hostile overstatements of them, public confidence began to be disquieted. There seemed a breach in the contract under which vaccination had been accepted. In what had promised so much, failures were all the more conspicuous; men looked to them, even where most exceptional, rather than to the successes of vaccination; and there were (1820-35) not a few persons whose minds began to misgive them whether the old plan of smallpox inoculation had not perhaps been too easily abandoned."

In 1818, after vaccination had become general in Scotland an epidemic of smallpox visited the inhabitants—a large proportion of the smallpox patients having been previously vaccinated. This gave rise to great surprise, and the prophylactic virtues of vaccination were freely discussed. An examination into all the facts relative to these cases of post-vaccinal smallpox so conclusively demonstrated the beneficial results of vaccination that public confidence in the measure was regained. The cases of post-vaccinal smallpox were so much milder than in the unmitigable variety that it gave rise to the term varioloid.

In Sweden an epidemic of smallpox appeared in 1824, in which 103 cases of post-vaccinal smallpox proved fatal, 69 of these presenting good vaccinal scars and 34 less perfect vaccin scars. Smallpox assumed epidemic proportions also in Germany, France, Italy and London, and in many cases appeared among the inhabitants who had been vaccinated in childhood.

In Ceylon the government of Great Britain, at an early period of vaccination, had the population so generally vaccinated, and so successful did the measure seem that smallpox was wholly banished from the island for a term of years. In 1819, however, Ceylon suffered a widespread epidemic of smallpox, which was marked by great virulence of the disease. In this epidemic many inhabitants who had previously been vaccinated in childhood, contracted smallpox. This island had a like experience in 1830, again in 1833 and again in 1836. In the epidemic of 1833 fully 75 per cent. of those contracting smallpox had been vaccinated in childhood.

Denmark was visited by several epidemics of smallpox between the years 1824 to 1835. Gregory says: "Yet in no country in Europe has more attention been paid to the practice of vaccination, both as to the numbers submitted to the process and the purity of the lymph employed." Notwithstanding these facts in Copenhagen, between 1824 to 1835, 3,839 cases of smallpox were observed, 80 per cent. of this number had been vaccinated during childhood. Even under these discouraging facts the value of vaccination was conclusively demonstrated, for the mortality in post-vaccinal smallpox was only 2.13 per cent.

The British army furnishes valuable statistics proving the proposition under discussion. From 1835 to 1838 the average strength of the army, including men, women and children, was 105,000. This force (including women and children) had been thoroughly vaccinated, yet 1,025 of them contracted smallpox and 122 of them died, a mortality of 11.9 per cent.

The records of almost all hospitals prove that the majority of cases of smallpox from a community generally vaccinated are among those who have been vaccinated during childhood. Dr. Gregory's service at the London Smallpox Hospital (1826 to 1850) has been divided into quinquennial periods with the following results: In the first period the number of cases was 1,262, of which 34 per cent. had been vaccinated; in the second period the number of cases was 1,331, of which 36 per cent. had been vaccinated; in the third period there were 1,763 cases, of which 41 per cent. had been vaccinated; in the fourth period, number of cases 1,643, of which 43 per cent. had been vaccinated; in the fifth period, number of cases 1,780, of which 52 per cent. had been vaccinated. Thus we see a gradual though decided increase of cases in persons previously vaccinated—the proportion of cases of post-vaccinal smallpox from the first quinquennial to the last having been 18 per cent.

In the London Smallpox Hospital Marson says the total number of smallpox patients received during the ten years, 1855 to 1865, amounts to 7,326, of which 78 per cent. had been vaccinated.

Dr. Welch, physician in charge of the Municipal Hospital, Philadelphia, Pa., says that during the epidemic of smallpox, 1871-72, the number of cases received amounted to 2,377, of which 68 per cent. had been vaccinated in childhood. In the same hospital in the epidemic of 1880-82 the number of cases admitted into the hospital was 1,659, 54 per cent. having previously been vaccinated.

Similar data might be presented from numerous sources, but it is unnecessary. Enough has been given to conclusively prove that smallpox occurring in persons who had been vaccinated in infancy is of much more frequent occurrence than is witnessed in individuals previously attacked by smallpox.

Let us now examine the question of redevelopment of susceptibility to smallpox. This redevelopment of susceptibility progressively increases up to a given period of life, the greatest increase up to a definite point corresponding with the length of time intervening primary vaccination.

The following tables, selected from many at hand, demonstrate this fact:

Ages.	Gregory of London.		Heim of Württemberg.	Mohl of Denmark.
	Cases.	Deaths.	Cases.	Cases.
Under 5 years of age	. .	. .	40	14
From 5 to 10 years	5	. .	68	102
From 10 to 15 years	25	. .	186	173
From 15 to 20 years	90	6	275	187
From 20 to 25 years	106	16	239	156
From 25 to 30 years	55	8	172	19
From 30 to 35 years	13	1	75	2
Above 35 years of age	4	. .	. .	. .
Total	298	31	1,055	653

The following table compiled by Dr. Welch from the Municipal Smallpox Hospital, Philadelphia, Pa., shows 2,907 cases of post-vaccinal smallpox admitted into the hospital from 1871 to 1883, including the cases classified according to the quality of vaccinal scars in individuals below the age of puberty:

		Cases.	Deaths.	Percentage of deaths.
Under 5 years of age	Good cicatrix	1	0	. . .
	Fair cicatrix	4	1	. . .
	Poor cicatrix	5	1	. . .
Total		10	2	. . .
From 5 to 10 years	Good cicatrix	11	. .	. . .
	Fair cicatrix	9	. .	. . .
	Poor cicatrix	26	8	30.73
Total		46	8	17.39

[36] Seaton's Hand-book of Vaccination, p. 223.
[37] John Simon: Royal Vac. Commission, 1889, p. 73.

		Cases.	Deaths.	Percentage of deaths.
From 10 to 15 years	Good cicatrix	45	2	4.44
	Fair cicatrix	18	2	11.11
	Poor cicatrix	36	4	11.11
Total		99	8	8.02
From 15 to 20 years of age		388	47	12.11
From 20 to 25 years of age		745	96	12.88
From 25 to 30 years of age		580	92	15.86
From 30 to 35 years of age		356	64	17.97
From 35 to 40 years of age		249	51	20.48
From 40 to 45 years of age		154	38	24.67
From 45 to 50 years of age		105	22	20.95
Fifty years of age and upward		175	63	36.00
Grand total		2,907	491	16.89

Sufficient data have been presented to conclusively demonstrate that it is and has ever been during the practice of vaccination, fallacious to contend that primary vaccination always confers upon the recipient an immunity equal to that which he would enjoy had he previously had an attack of smallpox. From numerous data throughout this paper it must be evident to every student of vaccination that a primary vaccination made in infancy confers upon the individual so treated a positive and well nigh unvarying protection against smallpox for an unknown number of years, generally to puberty, and that in a considerable, though undetermined, proportion of such individuals a redevelopment of susceptibility to contract smallpox ensues in consequence of the deterioration of the protective power which vaccination had exerted against smallpox. This fact in no wise militates against the efficiency of vaccination in the prevention and control of smallpox; nor does it detract one iota from the splendor of the discovery of the immortal Jenner. An appreciation of this fact places vaccination upon the impregnable rock of truth, and enables Jenner's successors to intelligently take the one additional step necessary to stamp out smallpox, *i. e.*, revaccination.

It being an incontrovertible fact that a thorough primary vaccination protects the majority through life from smallpox, but that in a considerable proportion of primary vaccinations a redevelopment of susceptibility to smallpox ensues, and inasmuch as we are utterly unable, from examination of vaccin cicatrices or otherwise, to decide who are not enjoying the full protective influence of vaccination, it is our duty to revaccinate every vaccinated person within ten or fifteen years from the primary vaccination, and in the face of exposure to smallpox to revaccinate even though the primary vaccination had been performed only several months previously.

PROPOSITION 9.

A good primary vaccination may be made in infancy, coupled with successful revaccination at puberty, as fully protects every individual so treated from smallpox as if he had previously had an attack of smallpox.

Revaccination at puberty being admitted to be necessary to confer upon the recipient the full protective benefit of vaccination, let us ascertain what this protective power has been ascertained to be.

Experience in Smallpox Hospitals.—Dr. Welch, physician in charge of the Municipal Smallpox Hospital, Philadelphia, Pa., says: "My experience in hospital work, which, as regards time, comprises a period of more than twelve years (Jan. 1, 1871 to May 1, 1883), entirely agrees with that of Marson and other observers just quoted. Only very few patients during that time have been admitted into the hospital under my charge, with varioloid, who presented evidence of having been successfully revaccinated, and these few had the disease in so mild a form that death has not occurred in a single instance. During my service no person entering the hospital in any official capacity, as resident physician, steward, matron, nurse, laundress, or other employe, who had taken the precaution to be revaccinated before entering upon duty, has suffered from smallpox in any form whatsoever. But, on the other hand, I have seen a few employes in whom revaccination was for some cause omitted, become infected by the disease."

Dr. Seaton (in report of Medical Officer of Privy Council and Local Government Board for 1874) says: "The observations which were made during the recent epidemic (1870-1873) afforded remarkable evidence of the value of revaccination, not merely in controlling the mortality from smallpox, but usually preventing altogether the occurrence of the disease. Its power of preventing smallpox under circumstances the most favorable for contracting it was tested on a very large scale on the nurses, servants and attendants of the various hospitals established for the treatment of the epidemic in the metropolis and in the provinces, the attendants in the hospitals of the Metropolitan Asylum Districts alone amounting at one time to above three hundred. In every hospital report which has reached me it is specially stated that not a single one of these officials, who had been revaccinated before coming to take duty at the hospital, contracted smallpox. On the other hand, a few cases occurred among some nurses and servants in the hospitals of the Metropolitan Asylum District, whose revaccination in the pressure of the epidemic had been overlooked; and there was one case in a nurse who, having had smallpox previously, had consequently not been vaccinated on coming into the hospital. There was also a modified case in a nurse in whom revaccination had been performed, but not till after her arrival at the hospital, and when the smallpox infection had already been received. The cases of smallpox which were admitted for treatment in the several hospitals in persons who had been successfully revaccinated were very few and very slight. In the hospitals of the Metropolitan Asylum Board, in which upward of 14,800 cases of smallpox were treated, there were but four cases in which there was good evidence of revaccination having been performed with effect, and these were all light cases. In Liverpool, says Dr. French, revaccination was found a constant and perfect protection against smallpox. In the Newcastle-on-Tyne smallpox hospital, in which 778 cases were treated, there were two in which revaccination was alleged to have been successfully performed, one of them ten years and the other four years before the attack of smallpox; both of them recovered. In the same hospital eight patients were admitted, stated to have had smallpox, five of whom were distinctly marked by it; one of the three not marked died, the remaining seven all recovered. In the Leeds hospital there were four cases in which previous revaccination was alleged, but in none of them was the evidence of revaccination conclusive. One of them, in which the revaccination was said to have been done at seven years of age, was fatal; the other three cases were mild. There were three (fatal) cases of smallpox in persons believed to have had smallpox previously, but the evidence of the former smallpox is not stated. Similar infrequency and mildness of smallpox after revaccination was noted in the hospitals abroad. In the municipal smallpox hospital at Berlin, in which 1,529 cases were treated who had been vaccinated, only nineteen of these were in persons (all above 30 years old) who had been successfully revaccinated; they were all of them cases of varioloid, or of variolous fever without eruption, and none of them died. In the same hospital there were seven cases (three of them fatal) in persons who had previously had smallpox. In the Baracken-Lazarethe, used also as smallpox hospitals in the same city, in which 1,805 cases were treated in persons who had been vaccinated, seven only were in persons who had been successfully revaccinated, of whom six had a mild attack and one (a woman 60-70 years old) had the hemorrhagic form and died. In the hospital at Leipsic, out of 1,504 vaccinated patients there were thirteen who had been successfully revaccinated in early life, all of whom recovered; in the same hospital there were twenty-two cases in persons who had had previous smallpox, and of these six died. In the hospital at Hamburg the cases in persons who had been revaccinated were more numerous, amounting to fifty-nine out of a total of 2,267 vaccinated patients, and there were three deaths."

Dr. Marson, having the greatest experience perhaps of all writers upon this subject, says of the test of vaccination in preventing smallpox: "For thirty years we have revaccinated all the nurses and servants who had not had smallpox, on their coming to live at the smallpox hospital, and not one of them has contracted smallpox during their stay here."

[38] *Manchester Royal Infirmary.*—Dr. Henry Thomkins, medical superintendent of the fever hospital belonging to the Manchester Royal Infirmary at Monsall, in a paper recently read at Owens College, said: "The most striking of all evidence is, perhaps, that derived from the smallpox hospitals themselves. Here the protective influence of vaccination is seen and proved in a manner beyond all cavil. At Highgate, during an experience of forty years, no nurse nor servant, having been revaccinated, has ever contracted smallpox; and evidence of the same character I can myself bring forward, for, during the whole time that I have had charge of the fever hospital more than a thousand cases of smallpox have passed under my care, yet no servant, nurse, porter, or other person engaged there has, after revaccination, ever taken it, though exposed daily to infection in its most concentrated form. . . . Again, among all the students who during the past two years have attended the hospital for clinic instruction, not one has suffered, all having been revaccinated before being permitted to enter the smallpox wards. . . I defy the most enthusiastic or conscientious of anti-vaccinators to produce evidence like

[38] Annual Report of the Board of Health of Detroit, Mich., 1882, pages 109 and 110.

this on his side of the question, or to bring forward even half a dozen persons, choose them whence he may, who have not been protected against smallpox, and expose them as the students are exposed, without more or less of the number taking the disease."

At Versailles, in 1828, during an epidemic of smallpox of marked severity, revaccination was first tested as a means of checking the ravages of smallpox. A large number were revaccinated, and no one of these revaccinated individuals contracted smallpox.

In Copenhagen, there were three severe epidemics of smallpox between the years 1828 and 1835, during which not a single revaccinated person was attacked by smallpox.

In the epidemic in Heidelberg, 1843–44, notwithstanding vigorous and thorough vaccination, a large number vaccinated ten or more years previously contracted smallpox, yet not one revaccinated person was attacked.

In Württemberg with a vaccinated population of 1,263,298, during five years the total number of cases of smallpox was 1,677,—354 of these were cases of confluent smallpox, 1,043 were cases of varioloid—being about one case of failure of protection against smallpox to 217 vaccinated persons. In a few years subsequently, of 44,000 revaccinated subjects, 20,000 took the vaccin disease perfectly, 9,000 imperfectly, and failed with 15,000, the successful revaccinations being almost exclusively in those who had been vaccinated many years previously and only 3 of these in a subsequent epidemic of smallpox contracted the disease.

Of 14,334 revaccinations in the army of Württemberg, 1831–1835, 8,845 had what are described as genuine vaccin marks or scars, and of this number 31 per cent. were successfully revaccinated; aborted vaccin vesicles in 29 per cent.; and revaccination failed in 40 per cent. With those having imperfect marks of previous vaccination, revaccination succeeded in 28 per cent., modified in 26 per cent., failures 46 per cent. Mr. Simon, in his able digest of the subject, published by the General Board of Health, shows that, during the years from 1833 to 1837, notwithstanding the fact that smallpox had been sixteen times brought into the army of Württemberg, there had ensued among the 14,334 revaccinated soldiers one single instance of unmodified smallpox.

In the Prussian army, in 1840, revaccination was performed upon 43,522 soldiers. Upon these soldiers were found distinct vaccin cicatrices in 34,573; indistinct vaccin scars in 6,177; in 2,772 persons no scars of previous vaccination were found, although they had formerly been vaccinated. The result showed 20,952 successful revaccinations; 8,820 partially successful; and 13,750 unsuccessful revaccinations. Revaccination was practiced in this army because of the increase of the number of cases of post-vaccinal smallpox among the soldiers. For ten years prior to 1831 these cases had been observed; and from 1831 to 1833, 312 deaths had occurred among the troops formerly vaccinated. For twenty years subsequent to revaccination, two deaths annually have occurred from smallpox, whereas 104 deaths annually occurred before revaccination was practiced.

In the Bavarian army revaccination has been compulsory since 1843; and for twelve years—1843 to 1855, as shown by the report of the minister of war—not a case of unmodified smallpox had occurred. A few cases of varioloid had occurred during this period of time, but not a single death from smallpox.

Dr. de Kerschensteiner, chief medical officer of Bavaria, as the result of official statistics of Bavaria for ten years, 1871–80, says: "Of those once vaccinated, 12 per cent. of those attacked, of the revaccinated only 7½ per cent., but of the unvaccinated, 46½ per cent. died of smallpox."

The annual reports of the Medical Departments of the Army and the Navy of Great Britain, afford most striking proof the protective power of revaccination in adult populations. The soldiers and sailors serving in the United Kingdom may be looked on as virtually a wholly protected force, for now, for several years past, every man serving in the Army or Navy, whether or not he has marks of smallpox or of previous vaccination, is required to be vaccinated on entering the service. This rule has been in force in the army since 1858, but until some ten years later, there was no rule in the navy requiring the vaccination of all who entered, whether previously protected or not. This has, however, now been rectified, and the result is seen in the fact that whereas in the days of the absence of such rule the smallpox death rate was much higher in the navy than in the army, the rate is now considerably lower, being in fact, for the six years, 1873–78, absolutely *nil*. Indeed, in the whole of the British Navy in all parts of the world, numbering 46,400 men, there were in 1878 but nine cases of smallpox, four on the home station, three on the East India, one on the Mediterranean, one on the China stations. All these nine cases are noted as mild, and were unquestionably modified by revaccination. In the very large proportion of the men employed in both services, the protection against smallpox is that afforded by vaccination. In the year 1877 only 5.45 per cent., of recruits proved on examination to have marks of smallpox, while 90.85 had marks of vaccination, and 3.69 had neither vaccination nor smallpox marks.

If the records of these protected services be examined to see what ravages are now made in them by smallpox, the disease which, according to Sir Gilbert Blane, was, before the discovery of vaccination, "one of the great embarrassments to the operation of armies," and obliged ships of war occasionally to quit the seas, we find that during the eighteen years 1859–76 inclusive, the annual deaths from it were considerably less than one per 10,000 (.643 only) amongst troops serving in the United Kingdom. More than a third of the whole of the deaths during these eighteen years occurred during the smallpox epidemic of 1871–72, the exceptionally severe character of which has already been adverted to. Among the sailors employed on the home force, there were, during the 20 years, 1859–78, as nearly as possible, one per 10,000 (1.0085) attacked annually with smallpox. During the same period the cases of smallpox did not exceed annually 9.05 per 10,000 soldiers and 16.16 per 10,000 sailors. If the influence of the ferocious epidemic of 1871–72 be duly allowed for, a steady decrease in the number of cases and of deaths will be observed from the commencement. In fact, omitting these two years, there has not been a single death from smallpox in the navy 1864 and 1880, *i. e.*, sixteen years ago. The recent statistics of the army are hardly quite so favorable, but still they show the year 1865 to 1880, with the exception of the epidemic years 1871–72, only one single soldier out of the 80,000 troops serving in the United Kingdom, has on an average died of smallpox in each year.

TABLE O.—Table showing for each of the years 1870-83 the mortality from smallpox in Berlin, in London and in Vienna per 100,000 inhabitants.

Year.	Berlin.	London.	Vienna.	Year.	Berlin.	London.	Vienna.
1870 . .	28.37	30.20	46.71	1877 . .	0.40	70.98	84.01
1871 . .	632.56	242.16	74.90	1878 . .	0.78	38.31	73.91
1872 . .	138.61	53.80	536.98	1879 . .	0.75	12.13	46.91
1873 . .	11.21	3.55	228.50	1880 . .	0.81	12.50	73.52
1874 . .	2.47	1.66	135.26	1881 . .	4.74	61.91	123.95
1875 . .	5.19	1.32	113.50	1882 . .	0.43	11.07	108.29
1876 . .	1.81	20.80	167.80	1883 . .	0.33	3.00	9.60

Average for nine years from 1875 to 1883: Berlin, 1.7; London, 25.83 Vienna, 89.29.

The above table furnishes incontestable proof of the efficacy of revaccination. The vaccination law of Prussia, requiring vaccination at the age of 1 year of age and revaccination at the age of 12 years, was enacted April 8, 1874, and has been rigidly enforced. In England, primary vaccination is compulsory, but revaccination, while urged upon the people, is not required except in the face of exposure to smallpox. In Austria neither vaccination nor revaccination is compulsory. The Austrian government warmly recommends vaccination and revaccination, but citizens adopt or reject the recommendation at will. Now, for the result. For the five years in the table, 1870 to 1874 inclusive, prior to compulsory vaccination, the average annual smallpox mortality per 100,000 inhabitants of Berlin was 162.64, while during the nine years of enforcement of compulsory revaccination at 12 years of age, it was 1.7 per 100,000 inhabitants. In London, it was 66.27, while during the nine years, 1875 to 1883 inclusive, it was 25.83. In Vienna, 1870 to 1874 inclusive, it was 205.41, while in 1875 to 1883 inclusive it was 89.25.

Again, during the nine years, 1875 to 1883, the average annual smallpox mortality in each of the three cities was as follows: Berlin, 1.7; London, 25.83; Vienna, 89.29 per 100,000 inhabitants. What is lacking to convince any sane man when such figures are presented?

In the smallpox epidemic in Sheffield, England, 1887–88, as previously shown, a house-to-house examination made under direction of Dr. Barry, inspector of the local government board, disclosed the fact that 64,431 citizens of Sheffield had been revaccinated and only 27, or 0.04 per cent. of the total revaccinated population had contracted smallpox, and one person, rather more than 0.001 per cent., died: 8,198 of these revaccinations were made prior to 1887, and of this number 25, or 0.30 per cent., contracted smallpox and 1, or 0.01 per cent., died. The remaining 56,233 were stated to have been revaccinated during 1887–88, and of these 2 persons, or 0.004 per cent., were said to have contracted smallpox and none of them died. The facts detailed by Dr. Barry show, however, that neither of these two cases were smallpox.

The enumerators under Dr. Barry reported that the total

number of persons living in Sheffield who had suffered attacks of smallpox prior to 1887 amounted to 18,292 persons. Of these, 23, or 0.13 per cent., contracted smallpox, of which 5, or 0.3 per cent., died, the percentage of deaths to cases of second attacks of smallpox having been 23.5 per cent.

VACCINATION AND SMALLPOX IN UNITED STATES ARMY AND NAVY.

The following tabular statements relative to vaccination and smallpox in the United States army and in the United States navy have been kindly furnished me by Surgeon General Sternberg of the army and Surgeon General Tryon of the navy. These tables richly illustrate the value of vaccination in prevention of smallpox.

In the army all men are required to be protected from smallpox by vaccination at time of enlistment. Now, for the result: For the eight years, 1884 to 1891 inclusive, in an army never numbering less than 23,226 men, there were 17 cases of smallpox and only three deaths from this disease.

In the navy for the sixteen years, 1880 to 1895 inclusive, among 68,944 men there were 95 cases of smallpox and only five deaths therefrom.

Vaccination and Smallpox, United States Army; Years 1884-91 inclusive.

Years.	Mean Strength.	Cases Vaccinated.	Cases vaccination Undetermined.	Primary Vaccination.	Revaccinations.	Total.	Primary Successful.	Revaccinations Successful.	Total Successful.
1884 . .	24,034	. . .	. . .	819	6,839	7,658	271	856	1,127
1885 . .	24,138	. . .	. . .	1,370	7,475	8,845	378	1,110	1,488
1886 . .	23,572	1	2	857	6,319	7,176	444	1,465	1,909
1887 . .	23,841	2	. . .	1,398	8,404	5,802	661	2,099	2,760
1888 . .	24,726	a2	. . .	1,605	9,593	11,208	891	2,920	3,811
1889 . .	25,008	4	. . .	1,800	10,577	12,177	944	2,985	3,929
1890 . .	24,234	. . .	1	1,224	6,230	7,454	729	2,052	2,781
1891 . .	23,269	a2	a3	2,382	7,974	10,356	1,455	2,948	4,403

"*a*" 1 died.

Report of Vaccinations.	1880-1885.		1885-1890.		1890-1895.		
	Successful.	Unsuccessful.	Successful.	Unsuccessful.	Successful.	Unsuccessful.	Total number Vaccinated.
No evidence of previous vaccination	1,560	2,014	1,168	1,803	1,235	1,767	9,547
Presenting good cicatrices.	6,687	13,372	5,563	12,912	5,024	13,597	57,155
Evidence of former attack of smallpox . . .	218	770	193	570	116	375	2,242

Total number vaccinated, 68,944—Successful, 21,764; unsuccessful 47,180

Admissions and Deaths from the following diseases, from 1880 to 1895, in the United States Navy.

Disease.	1880-1885.		1885-1890.		1890-1895.		Total.	
	Cases.	Died.	Cases.	Died.	Cases.	Died.	Cases.	Died.
Vaccina	433	. . .	368	1	501	. . .	1,302	1
Varicella.	3	. . .	7	. . .	11	. . .	21	. . .
Variola.	18	1	20	2	23	3	61	6
Varioloides . . .	28	. . .	6	. . .	. . .	. . .	34	. . .

(To be continued.)

SOCIETY PROCEEDINGS.

American Association of Obstetricians and Gynecologists.

Ninth Annual Meeting held in Richmond, Va., Sept. 22-24, 1896.

(Concluded from page 816.)

Dr. WILLIAM G. MYERS, of Fort Wayne, Ind., read a paper entitled

ATRESIA WITH RETENTION OF THE MENSES; TREATMENT.

The author reported two cases of atresia, one with absence of the vagina and uterus and the other with retained menstrual fluid. The last was operated upon successfully. He believes that in a case of atresia of the vagina with retention of menstrual fluid in the uterus, an operation ought to be completed at one sitting, adopting the direct method. He thinks the teaching in a recent work that "the best way is to make a small opening into the mass and allow the contents to flow away gradually," is not sound. He could not therefore see in rapid evacuation such great dangers as were referred to in the books.

PRINCIPLES AND PROGRESS OF GYNECOLOGY.

The president's address was delivered by Dr. JOSEPH PRICE, of Philadelphia. He first thanked the Association for the distinguished honor in electing him president, which he said was the most gratifying expression of personal and professional kindness. He said the Association was made up of earnest, enthusiastic and eminent men of the medical profession. We had more than a passing interest in the record of the transactions of our medical and surgical associations. From them the history of the progress of medical and surgical science would be made up; they would reflect the advanced thought and opinions, the strength of the endeavors, the results of clinic experience and research of the profession of this period. We had the inspiration of the reflection that our high service was that of humanity, and Dr. Price said the members were there to learn through the interchange of the best counsel how to make that service the best.

Dr. GEORGE H. ROHÉ, of Catonsville, Md., read a paper on "Some Causes of Insanity in Women," of which the following is an abstract.

The general causes of insanity are the same in women as in men, but there are modifying conditions in the life history of men and women that influence the causation of mental disturbances in the two sexes. General paresis and alcoholic insanity are more frequent in men because the latter are exposed to their causes to a greater degree and intensity. Menstrual, puerperal and climacteric insanity are on the other hand self-evidently limited to women.

Women are especially subject to mental disturbances dependent upon their sexual nature at three different periods of life; puberty, the child-bearing period, and the menopause. The functions and activities peculiar to these periods have an intimate etiologic relation to certain insanities. It is probable, however, that these functions have no influence in the production of insanity in their normal condition. It is only when the functions are disturbed, or when pathologic conditions are present that they have any unfavorable influence upon the psychic functions.

At the period of puberty, menstrual derangements are not infrequently causative of mental disturbances which do not yield until the menstruation becomes normal. In the puerperium, insanity is dependent upon septic absorption, or the consequences of other morbid conditions of the reproductive organs. Lactational insanity may be due to physical exhaustion, but in some cases pathologic conditions of the genitals or of the breasts seem to have an etiologic relation. At the menopause the disturbances of nutrition associated with the arrest of menstruation often produce insanity, and in many of these cases there will also be found abnormal alterations of the reproductive organs. The insanities following gynecologic operations are either due to septic conditions, or are merely due to the rapidly induced menopause. Their frequency has been much exaggerated.

Dr. WALTER P. MANTON, of Detroit, Mich., read a paper on

THE RELATION OF VISCERAL DISORDERS TO THE DELUSIONS OF THE INSANE.

He said, that the delusions of the insane are often an expression of somatic peripheral irritation has long been recognized, but observation leads Dr. Manton to believe that the importance of these mental manifestations as indices of bodily suffering was frequently ignored as a mere phase of the brain disorder, especially in the instances of supposed fancied visceral disturbances.

For convenience of consideration, he placed the so-called visceral lesions in four classes: 1, Delusions arising de novo from the diseased activity of the brain; 2, delusions regarding external or visible abnormal bodily conditions; 3, delusions arising from easily determined visceral disorders, and 4, delusions dependent upon obscure abdominal and pelvic states. The last three classes were briefly considered.

One can readily understand how visible bodily defects may be misinterpreted and the mind of the patient become confused as to the real nature of the condition which is always more or less open to inspection. The site of a dermoid tumor slowly developing in the abdominal walls led one of his patients to believe herself pregnant, but the removal of the growth soon dispelled the illusion. In another instance a uterine fibroid

called out the same impression, and the patient requested the physician to listen to "hear the young ones." The appearance of a complete procidentia uteri in another case gave rise to the idea that the protruding mass was the male organ, and under such conditions the patient could no longer retain her feminine appellation, and immediately rechristened herself "John." Such examples might be multiplied, for they were of frequent observation by all who had to do with the insane. In such instances the connection between the delusion and the somatic disorder was obvious, being, as it were, on the surface. In the third class, however, the relation of the condition to the expressed idea was not always so apparent.

The author reported interesting cases. In each of the patients the delusions referred chiefly to the abdomen, and in each an abnormal condition of some of the viscera was found, but a condition in which the early intervention of surgery would have afforded great, if not permanent, relief to the sufferings of patients. Laparotomy, in properly selected cases of the insane in whom visceral delusions are a pronounced and constant feature of the mental disorder, was not only justifiable, in his opinion, but urgently demanded in the interest of the patient.

Dr. DAVID T. GILLIAM, of Columbus, Ohio, read a paper on:

OOPHORECTOMY FOR THE INSANITY AND EPILEPSY OF THE FEMALE; A PLEA FOR ITS MORE GENERAL ADOPTION.

The author showed in this paper that oophorectomy was a logical and legitimate operation for the epilepsy and insanity of the female. Insanity is hereditary, as also epilepsy. They constitute the greatest curse to humanity. An insane father or an insane mother brings more misery into the world than any other father or mother. The offspring of such a parent, when ushered into the world, would be confronted by the awful specter of impending doom, and though he called on the rocks or mountains to fall on him, the curse would pursue and overtake him. Dr. Gilliam then gave a picture from real life. He would limit the operation to those in whom the malady appears in some way to be connected with, or dependent on sexual disturbance. He would go further and include all who were willing to undergo the operation to save themselves and their offspring from the miseries which awaited them.

Dr. J. F. BALDWIN, of Columbus, Ohio, followed with a paper entitled:

TREATMENT OF THE STUMP TO PREVENT ADHESIONS.

He estimated that about 1 per cent. of all cases operated upon die from intestinal obstruction, the result of adhesions to the stump. To diminish as much as possible the danger of adhesions, he recommended the careful closing in of stumps by a peritoneal flap, and described the method of securing this flap. In cases where the pedicle is, after a simple ovariotomy, not too large, he recommended that the pedicle be so ligated that the ends of the ligature were on the anterior face of the pedicle; that the ends of the ligature be then carried across the face of the stump, down and through the broad ligament, transfixing the ligament from behind forward. The ligatures should be passed through about half an inch apart. As the ends are drawn through and tightened, the raw end of the stump is rolled down and under the broad ligament, so as to be entirely protected. He had used this method in a large number of cases and with entirely satisfactory results.

THOMAS E. MCARDLE of Washington, D. C., read a paper entitled

ABDOMINAL SECTION FOR TUBERCULAR DISEASE.

The author formulated in a terse manner what had already been done by surgical means for the relief of women suffering from tuberculosis of the generative organs. There is no doubt that tubercular disease of the female genitalia is more frequent than is generally supposed. Every portion of the genital tract may be affected, the order of frequency for the various portions being the tubes, body of the uterus, ovaries, vagina, cervix and vulva. The tubes are affected in all cases, the body of the uterus in about three-fourths of the cases and the ovaries in about one-half of all cases. Tuberculosis of the body of the uterus is not at all a rare affection and has been frequently discovered in autopsies upon phithisical subjects. It can be the only focus of disease of the body, but it is generally associated with disease of the tubes and is generally secondary to disease of that organ. Of all the female genitalia, the vulva is the least liable to tubercular infection. The author then dwelt upon the etiology of tuberculosis of the female genitalia, after which he detailed the various ways by which the disease might be caused or transmitted.

The treatment of tuberculosis of the vulva, vagina and cervix did not come within the scope of the paper. The destruction of the tuberculous focus by fluid or solid caustics had been advocated by some surgeons, and if these means were not satisfactory, extirpation of the part was recommended. We had a very efficient means for the removal of the tubercular ulcers of the vagina and vulva in the application of the tincture of iodin. They rapidly disappear under its use. In case of failure, however, excision could be practiced. When the cervix is involved, and not the body of the uterus, the method of treatment advised for the vulva and vagina should be given a fair trial, but if they prove ineffectual no time should be lost in amputating the cervix. When the endometrium is involved there is a diversity of opinion as to the best method of procedure. It has been recommended to first curette the organ and remove all evidence of disease. The iodoform suppositories are introduced into the uterus. If there should be a recurrence of the trouble, removal of the organ is advised. If we bear in mind that tuberculosis of the body of the uterus is so frequently associated with the same disease in the tubes and ovaries, it seems to Dr. McArdle that having once ascertained the existence of tubercular disease in the uterus, it is our duty to look for a similar condition in the tubes and ovaries, and, if found, it behooves us to waste no time in curetting the uterus and treating it with iodoform, but to proceed at once to the performance of an abdominal section for the removal of the uterus, tubes and ovaries. This heroic method of treatment is advocated in primary disease of these organs. In a case complicated with tubercular peritonitis there would be no special danger in removing the tubes and ovaries. We all know how many cases of that disease have been cured by section and drainage. We could then curette and treat the body of the uterus.

Dr. CHARLES A. REED of Cincinnati, Ohio, read a paper entitled

MELANO-SARCOMA OF THE FEMALE URETHRA; URETHRECTOMY; RECOVERY.

This interesting case was as follows: Mary E. Y., aged 64, single, was brought to his private hospital Dec. 3, 1895. The patient had had no previous serious illness. There was no history of tuberculosis or syphilis in the family. The vaginal condition of the genitalia precluded the supposition of venereal infection of any character. Her general health was good, although there was some emaciation about the neck and breasts, the latter of which were flabby—changes no doubt incident to age. Careful examination revealed no diseased conditions about either the lungs or heart. Careful palpation and percussion of the abdomen yielded negative results.

About eight months previousiy, *i. e.*, in April, 1895, she began to notice some pain accompanied with blood on micturition. This was shortly followed by a more or less constant pinkish discharge from the genital fissure. The self-examination which followed revealed a tumor at the meatus urethræ. This tumor continued to increase in both size and hemorrhagic tendency until she was prompted to consult Dr. Morris, who curetted the neoplasm thoroughly aud treated it with styptics. When the patient came under Dr. Reed's care he found a black lobulated and eroded mass about three centimeters in diameter separating the labia majora. The orifice of the urethra was in the very center of this mass. A careful vaginal examination was not made at the time, as the vaginal structures, present in their integrity, rendered such an operation very painful.

Operation was done the next day, December 4. The small blade of a Jones' speculum was introduced; the patient being in the Simon's posture, the urethra was exposed in its entire length. A longitudinal incision was made through the mucous membrane along the dorsum of the urethra from a point where the presenting part of the mass was eroded to the base of the bladder. Another incision through the mucous membrane was made at right angles to the foregoing at point far enough above the eroded mass to insure healthy tissue. The mucous membrane was then dissected back in two lateral flaps and the urethra was enucleated. The urethra was found to be distinctly conical in shape, the base of the cone being at the meatus, the apex at the bladder. Care was taken to dissect out the canal to a point manifestly above the zone of malignant involvement. When this point was reached, but a slight distance from the bladder, the canal with the neoplastic walls, was excised. The cut margin of the cystic segment of the canal was seized at various points in its circumference by Kocher's forceps, brought down by gentle traction and fixed by interrupted sutures of silk-worm gut to the vaginal mucous membrane. A self-retaining catheter was inserted and the patient put to bed. The sutures were removed on the eighth day. The catheter was dispensed with on the twelfth day. The patient sat up on the fourteenth day, when she found that she could retain her urine and void it at will. She was dismissed December 21, entirely healed. She remained in good health until July 1, following—seven months when she

again summoned Dr. Morris because of some stomach symptoms. He found her suffering from persistent vomiting, and with a large mass in the epigastrium. This mass rapidly increased in size until it occupied all of the area between the navel and the breast, its nodular characteristics becoming more and more pronounced. She died of exhaustion July 14, 1896, having had no recurrence whatever of the urethral trouble. No autopsy was permitted.

Dr. J. B. MURPHY of Chicago, addressed the Association on

THE SUTURE OF LARGE VESSELS INJURED IN OPERATIONS.

He demonstrated the method employed by him. He said in 1762 Lembert conceived the idea of suturing injuries to vessels. He made two experiments, in both of which he failed. Dr. Murphy then referred briefly to the experimental work of other surgeons along this line, pointing out their successes and failures. His own researches and operative work lead him to believe that, where a large vessel is injured in an operation, a transverse division of it, not exceeding two-thirds of its circumference, the surgeon can resort to immediate suture without resection, and, if the field of operation be aseptic, can feel more certain that he will have union of the vessel and continuation of the current than he could where he sutures the intestine as for resection of the bowel. He believes from his observations that the changes are better with the suture. The importance of this concerned surgeons more in the treatment of aneurysms.

Coming to the question of stab and bullet wounds of the extremities, he said there was a great field for improvement in our past operative work. Formerly, we ligated vessels, and when this was done the inevitable result was death of the limb. He believes that now such limbs can be uniformly saved, particularly in the aseptic cases. With his present method of suturing large vessels, he is not afraid to suture any vessel in the body, feeling confident that adhesion or union will take place.

CONTUSIONS OF THE ABDOMEN.

A paper on the subject with report of cases and conclusions was read by Dr. W. G. MACDONALD, Albany, N. Y.

Contusions of the abdomen are always grave injuries. The question of surgical intervention, although much discussed, can not be regarded as satisfactorily settled. Seven cases of traumatic rupture of the stomach and small intestines are reported. Two operations were undertaken, one recovery, one death the eighth day after operation from second rupture. All the inoperative cases died. Reference is made to the general absence of evidence of contusions in the abdominal walls when serious visceral injury has occurred. Very slight causes, particulary if the intestinal canal is distended with fluids, may produce intestinal rupture, as the falling out of bed, a blow from a barrow handle. The early symptoms of intestinal laceration are not always distinctive. An analysis of two hundred cases of intestinal laceration as associated with abdominal contusion was made with a view to determining the symptoms. The following topics are considered the important ones: History of the nature of the injury, shock or collapse, pain, vomiting, pulse, temperature and physical signs. That careful investigation of a given case will usually show sufficient symptoms to make an early exploratory abdominal section imperative.

The following officers were elected:

President: Dr. James F. W. Ross, Toronto, Ontario.
First vice president: Dr. Geo. Ben. Johnston, Richmond, Va.
Second vice-president: Dr. John C. Sexton, Rushville, Ind.
Secretary: Dr. Wm. Warren Potter, Buffalo, N. Y.
Treasurer: Dr. X. O. Werder, Pittsburg, Pa.

Place of meeting: Niagara Falls, N. Y. Time: August 24, 25 and 26, 1897.

The American Public Health Association.

[Special Correspondence of the JOURNAL.]

The Twenty-fourth Annual Meeting of the American Public Health Association held at Buffalo, N. Y., Sept. 15–18, 1896.

(Concluded from page 818.)

FRIDAY, SEPT. 18, 1896. MORNING SESSION, 9 A.M.

The Association met an hour earlier than usual and listened to the final announcements of the local Committee of Arrangements by Dr. Howe, for the excursions to follow the adjournment in the afternoon and next day.

The Secretary reported that the Executive Committee had recommended the passage of the following resolutions which had been referred to it:

1. The resolution of Dr. Whitehall of New Jersey, that the standing committee on legislation be requested to report methods for rural sanitary administration which are in its judgment the most useful and promising.

2. The resolution of Dr. Walter Wyman of Washington, D. C.: Whereas, yellow fever is believed to be the most subtle and dangerous of all epidemic diseases; and whereas, it is ordinarily conveyed into a new country from an infected seaport of another; and whereas, the continued and persistent presence of this disease in any seaport is believed to be unnecessary and may be prevented by proper engineering and other sanitary measures; therefore be it

Resolved, 1, That it is the duty of every government possessing seaports thus infected to institute such engineering and other sanitary measures as shall remove this menace to seaports of other nations; 2, that it is the duty of the governments continuously threatened with the invasion of yellow fever from a seaport in which this is allowed to persist, to make such expostulations to the government in possession of the offending seaport as shall cause the latter to adopt sanitary measures necessary to remove this obstruction to commercial intercourse and menace to human life.

3. The resolution of Dr. Durgin of Boston, protesting against the passage by the Congress of the United States of the proposed act preventing experimentation on animals.

The Executive Committee further recommended the continuance of all the special committees except that on the centennial of vaccination, and the consolidation of the committee on the cause and prevention of diphtheria with that on the cause and prevention of infant mortality.

Dr. WRIGHT of Connecticut inquired what had become of his resolution recommending the discontinuance of oyster planting at the mouths of polluted streams, and when informed that it had been tabled by the Executive Committee, for the reason that it considers the effort should be to first prevent the pollution of the streams, gave notice of an amendment to the constitution, making the Executive Committee consist of nine members, three of whom shall be elected annually.

The Secretary reported forty additional names recommended by the Executive Committee for election to membership, for which the Secretary was instructed to cast the vote of the Association in block.

Dr. PROBST, of the Auditing Committee, reported that the accounts of the Treasurer had been carefully audited and found correct.

Mr. CROSBY GRAY, Secretary of the Advisory Council, reported that the following members had been nominated by the Council as officers of the Association for the following year:

For President, Dr. Henry Buckingham Holbeck of Charleston, S. C., Health Officer of the city of Charleston.

For First Vice-president, Dr. Peter Henderson Bryce of Toronto, Canada, Secretary of the Provincial Board of Health of Ontario.

For Second Vice-president, Dr. Ernest Wende of Buffalo, N. Y., Health Commissioner of the city of Buffalo.

For Treasurer, Dr. Henry Dwight Holton of Brattleboro, Vt.

For Members of the Executive Committee, Dr. Henry Mitchell of Trenton, N. J., Secretary of the State Board of Health of New Jersey, Dr. U. O. B. Wingate, Secretary of the State Board of Health of Wisconsin, and Dr. Jésus E. Monjarós of San Luis Potosi, Mexico, President of the Superior Council of Health of the State of San Luis Potosi, who were all thereupon elected to these respective offices by the vote of the Association.

Ex-presidents GIHON and FORMENTO were delegated by the Chair to conduct the President elect to the platform, who made a very feeling address in acknowledgment.

Mr. GRAY further reported that the Advisory Council had selected Toronto, Canada, as its place of meeting in 1897. Dr. Plunkett, President of the State Board of Health of Tennessee, moved to substitute Nashville, Tenn., in which he was ably seconded by Dr. A. N. Bell of Brooklyn, N. Y. Professor Bracken of the University of Minnesota moved to amend, being largely seconded, by substituting Minneapolis, Minn., and he was followed by Dr. Benjamin Lee, Secretary of the State Board of Health of Pennsylvania, who presented invitations from the Mayor of Philadelphia, the board of health of that city and the State Board of Health to meet in Philadelphia, which was ably seconded by Dr. Gihon, who as a Philadelphian argued the propriety of holding the twenty-fifth meeting of the Association—its quarter-centennial—in that city, where it had not assembled since 1874. He said that the presence of the Mayor of Ottawa, the capital city of the Dominion, backed by a strong delegation bearing an urgent invitation to go to that city, in a measure obliged us to hold our next meeting in Canada at Ottawa, having already met in Toronto in

1886 and in Montreal in 1894. After a lengthy and lively debate by the advocates of the various cities, Philadelphia was selected as the place of meeting in 1897.

The appointment of Dr. DOMINGO ORVAÑAÑOS of the City of Mexico to be Assistant Treasurer for Mexico was then announced, and members appointed on the special committees authorized by the Association.

The members of the new committee on transmissibility of infections and periods of danger from infected persons, constituted in accordance with the recommendation of the President in his annual address are Professor Eduardo Liceaga of the City of Mexico, Dr. John L. Leal, of Paterson, N. J., Surgeon Fernando Lopez of the Mexican Army, Medical Director Newton L. Bates, U. S. Navy and Surgeon General J. J. Kinyoun, U. S. M.-H. S.

Professor Stephen Smith of the City of New York was appointed Chairman of the new committee on international coöperation in preventing the transmission of contagious diseases with authority to select his associates.

The President, Dr. Liceaga, then extended an earnest invitation on the part of Dr. Rafael Lavista, Dr. Manuel Carmona y Valle and himself as the Committee of Management of the 2d Pan-American Medical Congress to all the medical members of the Association and their professional friends to attend that Congress which opens in the City of Mexico, November 16 and continues until the 19th.

The thanks of the Association were then tendered the retiring President, who eloquently responded, expressing the hope that the community of interest between the United States and Mexico shown by his election might be unending; and to the retiring First Vice-President for the able, prompt, and energetic manner in which he had assisted the President during the protracted sessions, and after a graceful response on his part, the scientific work was resumed in the following order: Report of committee on the "Relation of Forestry to Public Health," by Professor ROBERT C. KEDZIE, of Michigan; Report of committee on "Transportation of Diseased Tissues by mail," by Dr. HENRY MITCHELL, of New Jersey.

Dr. LEE commended the committee (Drs. Mitchell of New Jersey, LaChapelle of Montreal and Orvananos of Mexico) for the admirable work they had already accomplished and in recognition of the fact that the Hon. William L. Wilson, Postmaster General of the United States, had permitted the transmission of diseased tissues through the mail making their distribution possible, offered a resolution expressing the appreciation of the American Public Health Association of the deep scientific discernment exhibited by the Postmaster General in so doing.

A paper "On Statistics of Vaccination and Mortality from Smallpox in the city of Mexico, 1872-1895," was read by Dr. JOSÉ RAMIREZ, who said that vaccination met with no opposition in Mexico, where it was compulsory, and consequently smallpox had become very rare, the epidemic outbreaks occasionally occurring being due to foreign importation. A paper "On Drunkenness a Vice; it should be so treated," by Dr. A. NELSON BELL of Brooklyn, N. Y. This paper advocated the punishment of voluntary drunkenness as a misdemeanor, with increased penalties for repitition of the offense against society. "Municipal Cattle and Meat Inspection, by Dr. PETER H. BRYCE of Toronto; "The Prophylaxis of Scurvy in Prisons by Pulgue," by Dr. FRANCISCO MARTINEZ BACA, of Puebla, Mexico. Vice-President WOODHULL, in confirmation of the statement of Dr. Baca, said that the use of the maguey juice had long been known to medical officers of the army serving in the Mexican frontier as an excellent remedy for scurvy.

The following papers were presented: "The Relation of Noises to Public Health," by Dr. WILLIAM C. KRAUSS of Buffalo, N. Y.; "The Degeneration of the Human Animal Through the Nursery and Schools," by Dr. J. B. LEARNED of Massachusetts; "The Importance of Supplies of Pure Water," by Dr. J. L. DEHART of Brooklyn, N. Y.; "Racial Deterioration," by LAWRENCE IRWELL, M.A., of Buffalo, N. Y.; "The Protection of the Innocent from Gonorrhea," by Dr. FERDINAND C. VALENTINE of the city of New York; "The Necessity of Isolating Beds in Hospitals by means of Windows between Them," by Dr. JÉSUS E. MONJARAS of San Luis Potosi, Mexico; "Filth Deposits with Regard to Public Health," by Drs. JOSÉ D. MORALES and R. E. DE GUERRERO of Mexico.

The program having been concluded, Medical Director GIHON, United States Navy, rose to say that he had deferred to the last to make formal announcement of the recent death of two of the most distinguished members of the body, Dr. JOSEPH M. TONER of Washington, D. C., one of its founders in 1872 and its second President (1875), and Dr. JEROME COCHRAN of Mobile, Ala., State Censor of Alabama and senior member of the Advisory Council, who since 1878 had never failed in his attendance at the meetings when that was possible and who until a few weeks ago anticipated with great pleasure being with us at Buffalo, and offered a resolution of sorrow and regret, which was adopted by a rising vote. After appropriate valedictory remarks, the President at 2 P.M. declared the twenty-fourth meeting adjourned.

An excursion around the harbor and an exhibition drill by the life-saving service during the afternoon, and an excursion on the following day to Niagara Falls, by steamer on the Niagara River to Chippewa, by trolley along the Canadian bank to Brock's monument and Queenston Heights, by boat across the river to Lewiston, thence by trolley through the gorge to Niagara Falls, where dinner was served, and back to Buffalo by train closed one of the most interesting and successful meetings in the history of the Association.

Second International Congress of Gynecology and Obstetrics.

(Continued from page 761.)

The discussion of pelvic suppurations showed that the conservative operators were in the majority. Doloris (Paris) remarked that the fact which established with the most certainty the evolution of the subject under discussion was the return backward. "We have been sliding down an incline at a dizzy rate, and we are now working our way back." This is indicated by the more general adoption of vaginal incision. The success of this simple and familiar operation augurs the adoption of still simpler methods and promises to restore early uterine therapeutics to its true importance. Anterior vaginal celiotomy is a more recent but valuable conservative process. Since we find that pregnancy occurs sometimes even after double lesions, conservative processes have acquired a new importance. The conservative tendency which has been manifested at the Congress is logical and bound to assert itself more and more. After mentioning that the severest and most virulent processes rarely generate pus, and that about 40 per cent. of pelvic suppurations contain a sterile fluid without pathogenic action, he described the unreliability of the symptoms upon which we have to base our diagnosis, and concluded with the assertion that the treatment of pelvic suppurations is akin to the treatment of pelvic inflammations, and should follow the same general and absolute therapeutic rules, beginning with simple methods and proceeding to others as may be found necessary. What we most need is better knowledge of the evolution of pelvic inflammations, especially of salpingo-ovaritis, as this is the most frequent; the cases tending naturally to recovery with a series of recrudescences, gradually subsiding in intensity, and those in which the acute attacks extend beyond their usual term with complications that involve the general health, or when the lesion becomes permanent and some etiologic factor is discovered, tuberculosis, syphilis, arthritism, neuropathy, alcoholism, etc. He asserted that no real information is to be derived from the statistics of radical operations performed without any preliminary conservative treatment, and emphasized that the only treatment for pelvic suppurations was to try the simplest means of cure first and only proceed to sacrificial measures as a last resort.

Doederlein (Leipsic) considers that if there is pus in the tubes or ovaries total ablation of the diseased organs is the only chance of cure. But the uterus and ovaries may be left in certain cases. He prefers Péan's operation when the entire genitalia have to be removed, but when the pus has disappeared, anterior and posterior colpo-celiotomy may be preferred, as this in some cases allows a radical operation.

Segond (Paris) spoke in high terms of the American method, which allows the total ablation of the uterus and its adnexa with "veritably marvelous security," as he ascertained for himself by watching the American surgeons at work. He has also performed it himself recently, with success each time. He called attention to the importance of liberating the cervix as a preliminary to vaginal hysterectomy, whether it is amputated later or not. The cervix free, the broad ligaments can be sectioned at the base. As these are the only obstacles to the descent of the uterus, the fundus can be seized at once. Liberating the cervix also lessens the dangers of injuring the ureters.

Henrotay (Antwerp) stated that gonorrhea is by far the principal cause of suppurated adnexa, and that the majority of cases now called puerperal, are really due to gonorrheal infection. Prophylactic treatment should be based on the extreme severity of gonorrheal affections in women, and the obligation of physicians to fully inform every man with acute or chronic urethritis of this fact. Medical treatment should be tried first in every case where possible. If an operation is necessary, he prefers the vaginal method, and adds that the gonorrheal nature

of the lesion renders total castration imperative. He considers closing the vaginal vault and the pelvic peritoneum a marked improvement in technique, and that it should be done in every case unless there is some special contraindication.

Jacobs (Brussels) prefers posterior and anterior colpotomy in cases of extraperitoneal cellulitis, and uses the thermo-cautery to make the incision, thus avoiding infecting the vagina with the pus which escapes and may cause post-operative accidents. In performing hysterectomy he substitutes ligatures for the forceps, and since he has done this he has had no post-operative intestinal occlusion nor peritonitis. Drainage is not required after a radical operation, except when pus has escaped into the peritoneum.

Acconci (Genoa) prefers vaginal hysterectomy when the indications allow a choice.

Coromilas (Calameta) reported a case of pelvic suppuration caused by malaria and cured by quinin.

Laroyenne's method of vaginal *débridements* was described by him and its advantages confirmed by Adenot. It is more conservative than laparotomy or hysterectomy, while it reaches pus sacs inaccessible by any other method, and makes an opening large enough to empty them and keeps it open long enough to be really effectual. Laroyenne's trocar invented for the purpose is convenient and sure, but is not absolutely necessary. Doyen compared his operation with Péan's with an argument for its superiority. It consists in opening the posterior peritoneal cul-de-sac, and freeing the posterior surface of the uterus from the adherences, if there are any, and then extracting the organ by inverting it to the vulva, after median hemisection of its anterior wall; afterward extracting the adnexa. Hemostasis is unnecessary during the course of the operation, and forcipressure of the broad ligaments is only required afterward, and above the adnexa. (The *Bulletin Medical* of September 6, describes the Doyen method in detail.)

Reynier appealed for a more rational and eclectic treatment, based upon the indications, which should be more definitely established. His record since 1891 is 200 operations for pelvic suppurations. In four cases, with four recoveries, he opened the pus sac by the inguinal and subperitoneal route for phlegmons of the broad ligament after childbirth. In 110 cases he opened the abdomen, with 9 deaths; 7 from peritonitis, 1 from shock and 1 from hemorrhage. He has performed vaginal hysterectomy 52 times, with 6 deaths; 1 from hemorrhage, 1 from shock, 2 from intestinal occlusion, and 2 from peritonitis. In 46 cases he opened and drained the pus sac through the posterior cul-de-sac, with no deaths, but in 9 cases consecutive hysterectomy was required and laparatomy in 4. His experience has convinced him that almost all pelvic suppuration can be approached by the abdomen, and that our methods of draining render the danger of infection much less than the hysterectomist extremists are willing to admit. In case of a young woman with symptoms of recent infection and evidences of pelvic suppuration prominent in the vaginal region, he first makes an incision in the posterior cul de sac with large drainage. If in spite of this, the phenomena of infection continue, he completes the operation with a hysterectomy if the uterus is diseased, but if not, he prefers a laparotomy. His indications for primary hysterectomy are uterine abscesses opening into a neighboring cavity, especially into the rectum. Also old salpingo-ovaritis, with pelvi-peritonitic complications which have produced a diffuse mass walling in the uterus, and also for fibromatous uteri complicated with pus in the pelvis. In other cases he is inclined to prefer laparotomy, especially in cases of doubtful diagnosis.

Pichevin (Paris) has found sclerotic lesions in removed retrodeviated uteri, and has also produced similar lesions in rabbits in ths same way.

In discussing the question of surgical treatment of retrodeviations of the uterus, all seemed to agree that massage and the pessary should be tried first, and the metritis and all other complications receive careful preliminary treatment, which often puts an end to the displacement without an operation. Polk (New York) disapproves of fixation, and restores the uterus to position by shortening the round ligaments through an opening in the anterior vaginal cul-de-sac. He sutures the ligament a certain distance above its base, with its peritoneal covering, to the uterus on a level with its base, leaving a couple of loops. One of these he sutures to the uterus, and the other to the ligament above the first suture. At the same time he shortens the sacro-uterine ligaments when necessary, through a transverse opening in the posterior cul-de-sac, at the utero-vaginal insertion. A strong silk suture is then placed at each sacro-uterine ligament at a median point; the ends brought through the vaginal wall at the extreme corners of the incision, and tied firmly together; catgut closing; drain removed in fifteen days; patient kept in bed three weeks; no pessary but supervision of urinal and intestinal functions and ventral belts for patients with prominent abdomens.

Pozzi (Paris) proposed to substitute the term "excessive movability" for movable retrodeviation. He treats it with the pessary and hypogastric belt, curing the metritis (curettement, amputation of the cervix, etc.) and restoring rents in the peritoneum by an extensive plastic operation. He considers a retrodeviation with adherences a secondary symptom, and treats it by finding and removing the diseased tubes or whatever the cause may be.

Byford (Chicago) outlined his cysto-hysterorrhaphy as a T-shaped incision in the anterior wall of the vagina, separation of the adherences, suture of the fundus to the vesical peritoneum, shortening the round ligament through the vagina and closing with transverse sutures that draw the tranverse incision into the median line.

Schmeltz (Nice) prefers anterior colporrhaphy (simple incision in the mucosa, enlarging it with the fingers), combined with hysterectomy (ligatures) and perineorrhaphy.

Jacobs (Brussels) reports four successful pregnancies in twenty-one cases treated by fastening the anterior uterine wall to the upper part of the peritoneum of the anterior vaginal cul-de-sac. He announced that the later results of other operations, inoffensive in themselves, may prove very dangerous, and exhibited some pedicules that had formed between the abdominal wall and the uterus causing death from ileus, etc.

Engstroem (Helsingfors) reports eighteen ventro-fixations of movable retro-deviations and thirty-four of fixed. All successful. A single suture is passed through the abdominal wall, the peritoneum and the fundus. This leaves the uterus with almost normal movability.

Hartmann (Paris) has found that the development of the fetus brings the pregnant uterus into place, assisted by vaginal manipulation, except where there are adherences between the bladder, omentum and rectum, which require laparotomy, but such cases are rare.

Mangin (Marseilles) has failed with the Alexander or Nicoletis operation alone, but has been successful every time when they were combined with plastic operations. His advice is, first, pessary for movable retrodeviations. This failing, vaginal colpo-hysteropexy with plastic operation on the vagina. He limits the Alexander and abdominal hysteropexy to patients with non-resisting tissues. Complications must be cured with medical treatment, plastic operations, etc., as may be necessary, and if the condition of the appendages requires it, laparotomy when the lesion is single, hysterectomy if double.

The majority of speakers deprecated the use of fixation, as it rendered after-pregnancy so dangerous, especially vagino-fixation, although the operation is a good one after the menopause. Doyen's method of treating painful retrodeviations differs from all the preceding and, as he claims, has none of their disadvantages. He performs the Alexander operation and also shortens the anterior uterine wall, thus avoiding the dangers of suspending the uterus from any one point, and limiting the operation practically to the uterus itself. The cervix is seized with two clamp forceps, as if for a hysterectomy, and drawn down to the vulva. The uterus in this position, an incision is then made in the anterior cul-de-sac of the vagina, the bladder is detached and an opening made into the anterior cul-de-sac of the peritoneum. A silk thread is then passed transversally through the superficial coat of the fundus with a special needle-holder. The other end is fastened in the lower part of the subvaginal portion of the cervix. This ligature shortens the anterior uterine wall and draws the organ into an upright position without interfering in the least with the direction of the cervical passage. A second ligature is made above it to strengthen it, and the vaginal wound is closed with a silkworm gut, the two ends simply held by a rubber tube. The entire operation requires only five or six minutes. It is completed by shortening the round ligaments 8 to 10 centimeters, through an incision into the anterior wall of the inguinal canal.

Reynier performs hysteropexy by putting his threads into the broad ligament, and passing them under the uterine insertion of the round ligament, fastening them on each side to the abdominal wall. In every case the uterus has retained its position.

Schwartz (Paris) reports several successful pregnancies after his hysteropexy. After preparing the patient for laparotomy and introducing a Hegar bougie (6 or 7) into the uterus, held in place with a cotton tampon, he incises 4 to 5 centimeters, and explores with his finger the condition of the appendages, while an assistant straightens the uterus by gently pushing up the bougie into it. After the adherences are detached, a silk thread (No. 2 or 3) is passed through the uterus below the emergence of the two tubes. The loop thus formed serves to

draw the uterus up and allows two or three other threads to be taken below it, avoiding the vesical cul-de-sac, and keeping as far from it as possible. If the appendages are diseased, they are ignipunctured, resected or removed, before the threads are fastened, after being passed on each side through the entire thickness of the wall, except the skin and the subcutaneous cellular tissue. Separate threads close the peritoneum, the teguments, and the muscular aponeurotic planes. He has only had two relapses; one of them after confinement; two still suffer pain, thirty are definitely cured.

SELECTIONS.

A Case of **Compound Protozoan and Bacterial Infection.**—The patient, A. J., was a Pole about 29 years of age, from whom a satisfactory history could not be obtained. He had been living in a malarious district since March of the past year (1895), but he had been quite well until three weeks prior to his entrance, which was on October 21. His illness began with diarrhea, which rapidly assumed a severe character, the movements containing much blood and mucus. During these three weeks he stated that he had several times experienced slight chilly sensations and also felt feverish. On entrance to the hospital he was very anemic, extremely sallow; had a palpable spleen, slight fever and severe dysentery, the movements showing much blood and mucus. The dejections contained many motile amebæ having the appearances of the ameba coli. The blood examinations showed hyalin bodies and crescentic and ovoid pigmented forms of the malarial parasite. Under the administration of five grain doses of quinin every three hours the temperature fell. The diarrhea was treated with irrigations of quinin (1-1500) repeated twice daily, but without apparent effect. The patient continued to lose blood per rectum and died on November 2.

The *autopsy* was performed seven hours post mortem. Body of a moderately strongly built, much emaciated man. The surface presented a distinctly sallow hue. The mucous membranes of the mouth and conjunctivæ were extremely pale. The abdomen was moderately distended; the subcutaneous fat almost absent; the muscles dark-brownish red in color.

The peritoneal cavity.—The omentum was well spread out, covering the intestines, but it presented an opaque appearance and was covered with a sticky exudate. The loops of the moderately distended small intestine were glued together by a similar sticky exudate. The serous membrane itself was in places vividly injected. In the fossæ small accumulations of fluid containing flakes of fibrin were encountered. The omentum was adherent along its lower border to the much enlarged and inflamed appendix vermiformis. The appendix lay anterior to the cecum and between it and the anterior abdominal wall; it was provided with a mesentery which reached within 3 cm. of its tip, and at the termination of this the appendix was bent sharply upon itself, giving rise to a right angle. The distal 3 cm. of appendix was the least dilated part; the remainder had the thickness of the index finger and presented in addition three bulbous enlargements, which on section were found to correspond to areas of necrotic tissue. The whole was embedded in a sticky, opaque exudate.

Intestines.—The large intestines were greatly distended. The sigmoid flexure was of rigid consistence and projected beyond the pelvic brim. Within this portion for a distance of 2x5 cm. the serous coat was infiltrated with blood and presented a necrotic appearance. On opening the large intestine the entire mucous membrane was found in a frayed and sloughing condition, opaque, everywhere infiltrated with gelatinous pus and evidently necrotic. The necrosis seemed to extend far beyond the mucous coat and to involve the deeper layers. The walls, as a whole, were very much thickened. In many places coagula of blood were discovered. Amid this general necrosis and sloughing more circumscribed ulcerations existed, some of which seemed to reach to the peritoneal coat. These in particular were surrounded by thickened and purulent margins, and at times they definitely undermined the adjacent tissues. The ulcerations and sloughing extended from the rectum to the cecum, involving the whole of the latter, penetrating into the appendix, but ending abruptly with the ileo-cecal valve. The small intestine was entirely free from ulceration, and it showed throughout nearly its whole extent, although most prominently upon the crests of the valvulæ conniventes, a slaty pigmentation. The duodenum was more pigmented than other parts of the small intestine.

The *spleen* was enlarged, weighed 380 grams, its capsule was wrinkled, and on section it presented a bluish black color. In consistence it was almost diffluent. The Malpighian bodies appeared enlarged, the pulp increased.

The *liver* weighed 2100 grams, its color was dark and slaty. Small grayish white nodules could be seen on section, which varied in size from a pin point to a hemp seed. The larger ones could easily be made out to be abscesses, the contents of which were opaque, gelatinous and pus-like. The wall of the *gall bladder* was thickened and infiltrated with a similar exudate to that covering the peritoneum. The mucous membrane was, however, intact. The remainder of the organs exhibited no remarkable lesions.

Microscopic examination of the fresh specimen.—Attention was first directed to the study of the exudates for amebæ, and for this purpose pus, *a*, from the peritoneal cavity; *b*, from the intestinal contents; *c*, from the liver abscesses, was employed. The most painstaking search failed to reveal amebæ in the pus from the peritoneal cavity, while on the other hand many typical living and moving amebæ were discovered in the pus from the ulcers in the large intestine and the intestinal contents, and a smaller number in the contents of the liver abscesses.

The exclusion of amebæ from the peritoneal exudate led next to the staining of cover-slips for bacteria. By the use of ordinary staining agents (gentian violet, methylene blue) myriads of capsulated diplococci resembling the micrococcus lanceolatus were revealed. The contents of the liver abscesses, stained in the same manner, failed to show any bacteria whatever. The microscopic examination of the abscess contents indicated that fewer pus cells and more necrotic and disintegrating liver cells composed these than in ordinary abscesses, thus recalling the fact pointed out by Councilman and Lafleur in their monograph on amebic dysentery, that true suppuration is not caused by the ameba dysenteriæ.

The source of the bacteria found in the peritoneal exudate, and which evidently were the cause of the acute peritonitis, was sought in the intestinal contents, where, as is well known, they are not infrequently contained, and from which source, as we have previously pointed out, they may invade the peritoneum and set up a fatal peritonitis. The condition of the appendix vermiformis, which arrested attention from its swollen and necrotic appearance, was believed to have led to the escape of the microörganisms in question. Upon closer examination it was found that corresponding with the dilatations previously described, the entire wall was in a necrotic condition. The ulcerations themselves reached deeply into the inner coats, but did not penetrate all the coats. The lumen of the swollen appendix was filled with yellow, gelatinous pus quite resembling that found in the peritoneal cavity itself. Cover-slip preparations showed many encapsulated diplococci, besides several kinds of bacilli. The former much predominated in numbers.

Malarial bodies were not numerous in smear preparations from the organs, although pigment was abundant. However, a few undoubted ovoid bodies were found in the smears from the spleen and bone marrow.

Cultures.—Petri's plates were made from the blood in the heart, the exudates and all the organs, upon agar-agar. Those

from the *heart's blood*, *spleen*, *lungs* and *liver abscesses* showed no growth after having been kept at the temperature of the thermostat for forty-eight hours.

Peritoneum.—The plate was crowded with colonies, apparently of two kinds, which, owing to the large numbers, probably did not reach full development. The larger colonies consisted of bacilli which were identified and shown to be the bacillus coli communis. The smaller colonies (predominating) were made up of oval diplococci which were shown (cultures and animal experiments) to be the micrococcus lanceolatus. The plate made from the *bile* contained 7, from the *liver* 30 colonies of the bacillus coli communis. The plate from the *kidney* was crowded with colonies of the colon bacillus, among which a few smaller colonies of diplococci were found, these being the micrococcus lanceolatus.

Histologic examination.—The microscopic examination of the hardened tissues was confirmatory only of the features of the case as already described. Nothing new was discovered. As regards the malarial pigmentation, the dark pigment was found especially in the liver and spleen (bone-marrow not studied), and in these organs in the usual situations. The parasites themselves were very difficult of demonstration. The lesions in the large intestine caused by the invasion of the amebæ were perhaps the most interesting. The necrosis, it was found, extended into, but for the most part not through the innermost muscular tunic, but it was surprising to what extent the mucous membrane might be dissected away from the submucosa without losing its vitality. Not a small part of the frayed appearance presented by the large intestine was produced by this partial dissection of the mucous coat. The bases of the ulcers proper were formed for the most part by the circular muscle, which was itself infiltrated with inflammatory products, cells, serum, fibrin. The inflammatory infiltration extended into the depths of the tissue, often to the serous coat, and spread laterally for a great distance. It seems probable that the ulcers in the appendix originally were caused by amebæ, and that subsequently the extension of the necrosis to the serous surface was the work of the micrococcus lanceolatus.

Amebæ apparently were abundant. But just here it is proper to state that in the hardened tissues it would be easy to be led into errror in regard to the significance of many of the ameba-like cells present. From a study of the transitions of connective-tissue cells and their progeny in the chronically inflamed parts, it is quite certain that many of the bodies resembling amebæ are swollen and degenerated (fatty or vacuolated) tissue cells. These, too, often lay in definite spaces, and they were found in the submucosa and muscle and within small veins. Without the proof supplied by the examination of the intestinal contents during life and at the autopsy, one must have remained in doubt as to the presence of amebæ among these elements.

The kidneys showed a moderate degree of parenchymatous degeneration. In addition to this, emboli of liver cells were detected in branches of the renal vein. Similar emboli were discovered in the central veins of the liver lobules not infrequently. Lubarsch has reviewed the literature upon the subject of "parenchymcell emboli." It appears that liver cell emboli are either of traumatic or of infectious (or due to intoxication) origin. There is no definite relation between the extent of the injury and the occurrence of such emboli. The transported liver cells, besides being found in the veins of the liver, occur in the heart, pulmonary arteries and branches of the renal and hepatic arteries. Among the infectious diseases liver cell emboli are found very often in eclampsia and chorea. In eclampsia they are found very often in the arteries of the lungs and brain and in the renal veins; in chorea in the hepatic artery and branches of the portal vein (patent foramen ovale). Where hemorrhage, necrosis and softening exist, liver cell emboli are encountered. Thus they have been found in scarlet fever, in softening of hepatic gummata and in liver abscess. The transported liver cells have been found followed from the hepatic veins into the coronary, renal and other arteries. Their occurrence in veins—renal and cerebral—is attributed to retrograde embolism, for which a high degree of venous stasis, such as occurs in eclampsia, has been assumed. Evidence of such stagnation is wanting in our case. On the other hand the disintegration of liver tissue, such as has been found in other cases, is supplied by the abscess formation and circumscribed necrosis in the liver. Lubarsch states that the conveyed liver cells may persist from three weeks to two and one-half months, but evidences of proliferation have never been observed.—Reported by Dr. Simon Flexner in *Bul. of the Johns Hopkins Hospital*, September and October.

Foreign Bodies in the Esophagus.—Dr. Carl Beck of New York in the *Clinical Recorder* argues for an earlier employment of surgical treatment in these cases. His experience shows that valuable time is generally wasted by the administration of emetics and covering (einhüllende) substances, such as soft bread or hashed potatoes, until even successful removal by surgical procedures is not able to prevent the fatal outcome any more. It is justifiable to attempt once to remove the foreign body by administering an emetic. But if this one effort fails, either extracting or pushing down should be done without further delay. All bodies which can either be seen or which can be felt by finger or explorer, within the pharynx, must be extracted. If the body has passed the isthmus, it has to be pushed down into the stomach; sharp-edged bodies, however, like splinters of bone or wood, needles, pins, etc., to be excepted. Repeated attempts should be made to extract such bodies also, because they may perforate into important blood vessels or the trachea, or may cause fatal abscess formation. The best instrument to be employed for such purposes is a so-called "coin-catcher," which consists of a long flexible sound made of whalebone. To one of its ends a piece of sponge is attached for the purbose of propulsion toward the stomach; on the other end is a grooved metal ring. By passing the foreign body first with this grooved ring and then withdrawing it slowly, at the same time turning the instrument slightly, the body is caught in the groove in the great majority of cases. The coin-catcher is introduced best after having it lubricated with the white of an egg. The patient's head is thrown back so as to bring the axis of the mouth and pharynx in line with the esophagus (just like the juggling sword-swallowers). The location of the body will then be indicated by the stoppage of the instrument. If such methods of fishing up or pushing down do not avail, esophagotomy must be performed without delay. Herniotomy does much less harm to a strangulated gut than a prolonged taxis, and the same principle and view applies here. Esophagotomy is by no means a difficult operation, if only the principle is obeyed to operate with blunt instruments. After having introduced a sound into the esophagus from the mouth as a guide an incision is made alongside the left anterior margin of the sterno-cleido-mastoid muscle. Then the tissues containing the carotid and jugular and the pn. vagus, together with the ramus descendens of the hypoglossus nerve can be separated without any cutting by the use of the Cooper scissors and then be retracted with blunt hooks. Now it is easy to feel the sound, previously, and to incise on it. After the foreign body is extracted with a suitable forceps, a sharp spoon sometimes also being useful, the wound is but partially closed and the remainder packed with iodoform gauze. At the New York German Medical Society (see *New York Medicinische Monatsschrift*, April, 1892) Dr. Beck presented a case of a girl, 18 months of age, in whose esophagus a quarter of a dollar piece had remained for four weeks and which he could extract by the coin-catcher, the patient making a good recovery. But such cases are only the exception. Repeatedly he has seen cases in which all the various means of extraction and propulsion were tried, and only after much valuable time was lost esophagotomy was resorted to. But the extraction then would not avert septic inflammation and its consequences (broncho-pneumonia, etc.). The Roentgen rays seem to have started a new era in the location of foreign bodies in the esophagus, so that they will not remain unnoticed any more, and are no longer confounded with phthisis pulmonum, croup, bronchitis, asthma, etc. J. W. White (*University Medical Medicine*, June, 1896) could get a definite information by the rays in a successful case of a girl, 2½ years old, which had swallowed a jackstone, the location of which being such that gastrotomy appeared to be preferable to esophagotomy.

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It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, OCTOBER 17, 1896.

THE TREATMENT OF INSANITY EIGHTEEN CENTURIES AGO.

Nowhere in science is the truth of TENNYSON, that

> "The course of time will swerve,
> Crook and turn upon itself in many a backward
> streaming curve"

better illustrated than in medicine. All great medical discoveries seem upon the point of being made long ere the culmination of facts places them beyond destruction by inertia and conservatism. Anesthesia, the germ origin of disease, antisepsis and multitudinous "late" discoveries were discernible for centuries in medical works ere the nineteenth century placed them in the rank of commonplace facts. This is peculiarly true of psychiatry, whose essential principles were outlined eighteen centuries ago. Much suffering might have been saved the hapless insane and much misfortune to the medical profession been avoided had these principles then outlined been adopted in the main. According to SORANUS (A. D. 95, whose writings are recognized as those of CÆLIUS AURELIANUS, his translator), it is useless to examine into causes, as different causes may produce analogous effects. It is only necessary to know the results in order to apply suitable remedies. He was decidedly averse to violent emetics and purgatives. He everywhere manifests the fear lest inflammation should be augmented by the strength of the remedy. He advises frequent exercise, warm fomentations, inunctions, cataplasms, fumigations, frictions, diet, baths, leeches and cuppings. He recommends great attention to the character of the air, whether moist or dry, etc. He rejects all empiric medication and fetichistic formulæ. The maniacal should be placed in rooms moderately light, of a moderate temperature and whose tranquillity should be uninterrupted by noise. No painting should ornament the walls. The air should come in by elevated openings. The patients should be placed on the ground floor rather than on the upper story, as most of them are disposed in their paroxysms to cast themselves down. Their beds should be solidly fixed and so disposed that the patient may not see persons entering, nor be irritated by a variety of figures. If they be so agitated that it is not possible to give them aught to lie upon except straw, this should be well selected, prepared and stripped of everything hard, in order that it may be mild and not disagreeable to the touch. If some parts of the body have suffered from the movements of the patient, use warm applications and fomentations of oil mixed with decoctions of fenugreek, mallow or flaxseed. Frequent passing in and out should be forbidden. Sometimes use an intentional indulgence and sometimes a slightly severe reprimand, with an explanation of the advantages occurring from a better course of conduct. If agitated, difficult to restrain, or irritated by solitude, it is necessary to have supervisors who should be ordered to master the patients without their perceiving it, approaching as if to make friction in order never to provoke them, if the sight of men irritates; and only in very rare cases he employs ligatures, but with the greatest precaution, seeing that the bonds are of a soft, delicate texture. Means of repression employed without discretion augment and even create fury instead of lulling it (GALT'S Insanity, 1846). If they have fear and respect for any one person they should not see him often; frequent visits compromise such an ascendency. But when they resist the wishes of those around them it is necessary to recur to his authority. If light excites them, their eyes must be deprived of it, though not the rest of the body.

Abstinence is suitable at first and recourse to bleeding if the strength permits. If no contraindication exist it should be repeated from time to time. One of the best means of appreciating the degree of the strength is drawn from the state of the pulse, which the physician must observe whether it is strong or feeble. SORANUS should commence feeding with great precautions and not permit any except very light diet of easy digestion. The patient must be thus nourished during the decline of the affection. Injections must not be neglected if the evacution be not regular; in a great number of cases the belly should be covered with emollient cataplasms which descend to the pubis in order that no organ may suffer any pain, which the head also would reciprocate.

Physicians should observe with great care the form of the delirium and have recourse to the salutary influ-

ence of moral impressions, gay ideas and those things causing some relaxation of mind. If the disease remains stationary he shaves the head. Scarifying cups should be applied in turn to the breast and between the shoulders as connected with the head. But these applications ought not to be too near the head nor too largely made, as calling the blood in this quarter, etc. Leeches may be placed on the forehead or the temples, taking care to favor the flow of blood by cataplasms of emollient substances or sponges dipped in water. If the symptoms persist, the same means must be used the second or third day and as often as necessary. If the parts covered by the cups and the leech bites be painful they should be moistened either with oil or a decoction of mallow, etc. If the disease arise from fatiguing overwatching, it is necessary to have recourse to rides upon a bed suspended or upon a chair carried along or even upon enlaced hands. The monotonous noise from the continual fall of a small current of water from a height has good effects. Application of warm sponges upon the eyelids is also useful. When the paroxysm declines it is necessary to give more varied aliments, moderately strengthening when they have regained their strength.

Exercise is then especially beneficial. They must, also exercise the voice. They should be made to read writings containing faults, which often at the same time have the advantage of exercising the mind in the correction of imperfections in style. These writings should be of easy comprehension. The physician should converse with them, asking questions without fatiguing them. Recourse should be had after reading to theatrical performances, the recreation from which will diminish a sadness ready to awaken, or frivolous fears ready to reveal themselves. At a more advanced epoch of treatment, occupy the patients with weighty meditations and discussions in order to give their mind its full capacity, but with the precaution that the commencement of the subject treated should be without warmth, that the narration, on the contrary, and the demonstration should be clear and complete, should solicit an animated utterance and that the epilogue should be brief and careless. His hearers should give the patient their benevolent approbation. After this exercise they should promenade or have their bodies rubbed. As to the unlettered the physician should discuss with them matter only relative to their conditions. He should speak to the laborer concerning agriculture, to the mariner as to navigation. If we have to act with a man ignorant of everything he should present very general subjects or a series of numbers. Physicians are able in truth to find suitable nourishment for all sorts of minds, but above all should agreeably complement the patient. Annointing and frictions which have been recommended should be made at first upon the shoulders and on the neck, commencing lightly, then more strongly afterward on the head, after which a bath. The nourishment should become more and more substantial. After beans, herbs; then fish, the brains of different animals, an easily digested aliment; then little birds. The larger kind later as thrushes and young pigeons. There should be even more reserve as to the hare and the roebuck.

Physicians should grant a little weak and light wine, at first every five days, then four, three, even until every day. When no new symptoms occur and the patient has become much less impressible, change of air will be of great advantage. Voyages by sea or land, distractions of all sorts, recreation of the mind, agreeable, affectionate conversations will produce an excellent effect, for if ennui and sad feelings act on the sane, how much will they influence the scarcely cured? The convalescent, should he desire it, can hear the precepts of the philosopher. They often dissipate sadness, fear and excitement and may contribute powerfully to the reëstablishment of health. If the malady really persists and not merely some of its symptoms, a return is counseled to the previously mentioned means, to exposure of the body to the heat of the sun, the head only being free from its action, to sinapisms and to violent exercise of different kinds.

SORANUS combats his predecessor's recommendation of darkness in all cases, because it may suit one and not another, and their recommendations of an immoderate abstinence without exception, because this may sometimes throw the patient into fatal feebleness and prevent the use of means otherwise suitable. They seem, he says, to consider their patients as ferocious beasts to be lulled by hunger and thirst, and led by the same error they wish to chain them cruelly, not considering that it is more convenient and easy to restrain by the hands of men than by violence and the lash, a deplorable treatment which can but aggravate their condition and make bloody their limbs and offer the sad spectacle of their misfortune at the moment in which they regain their intelligence. By medicaments, as the poppy, they provoke a morbid torpor instead of good sleep. They rub the head with oil of roses, etc., and excite organs needing relaxation. They make little judicious use of cold, ignorant that it is often excitant. They employ irritant clysters and thus produce dysenteries. They counsel drunkenness and love, which are causes. They prescribe music as a routine, whereas it sometimes excites. The generative act should not be permitted to the insane. The repression of their desire may sometimes agitate them, but they are oftener found to be worse after coitus. His treatment of melancholia has been indicated in what has been said of mania.

This treatment of insanity was far in advance of that practiced in Europe in the first decades of the

present century, or that of Cook County in 1871, of Auburn (N.Y.) in 1876, of Anchorage (Ky.) in 1882 and of 1896 by the Hahnemanniacs at the Norfolk (Neb.) Insane Hospitals. Whips, violence and excessive restraint were the therapeutic methods employed at these institutions, not spasmodically or furtively, but on a settled principle. SORANUS, long ere PINEL, RUSH, TUKE, CONOLLY or GARDNER HILL, seems to have grasped in the main the true principles of psycho-therapy.

THE PROGNOSIS OF MANIA AND MELANCHOLIA.

The common notion taught in all text-books and held as one of the axioms of practical psychiatry, that mania is the most hopeful and curable form of mental disorder, will receive a severe blow from the lately issued fifth edition of KRAEPELIN'S "Psychiatrie." The author of this volume, one of the best known and admittedly one of the ablest of German alienists, has very largely remodeled his work, and it contains the latest and fullest results of a very wide experience, estimated with a thoroughly critical and competent judgment. His conception of mania is not essentially different from that generally accepted by authorities on mental disease, but he does not recognize it as an independent entity in his classification. All cases, according to him, especially those in the earlier and middle periods of life, before the downward slope of life has been reached, are properly to be referred to the periodic insanities; they are not single, isolated attacks of a disease that may never be again suffered from, but are indications of a constitutional disorder, sure in time to recur. He bases this opinion on an observation of a thousand cases carried over a great many years, and in all these he has found but one in whom the disorder did not recur and that is not in support of the view stated above. A single exception in such a series only proves the rule, and so far as known no one has ever followed up as methodically and carefully the after-histories of his patients as KRAEPELIN seems to have done. It has been a matter of general experience that an attack of mania was perhaps, as we may say, one of the least self-protective of disorders, that a second attack was very liable to occur after a variable lapse of time; but few, if any, had before been led to generalize from these facts that it is properly to be reckoned a periodic disease. KRAEPELIN himself admits that the interval of mental health may be long—ten years or even more in some cases—but he claims none the less the validity of the rule he has laid down that recurrence is inevitable, sooner or later.

It may be thought, perhaps, that this is merely a change in the point of view; that the facts are the same, but that they are differently estimated by him from those who have written before. It is, however, really much more than this; if we accept KRAEPELIN'S views, our prognosis of mania and of the so-called simple insanities generally is completely reversed; instead of being the least, they are to be counted amongst the most formidable types of insanity as regards the future of the patient. What is true of mania is true also in regard to melancholia, which he classes amongst the mental disorders of the period of involution; when it occurs in early life it also falls in his system into the periodic insanities.

How generally KRAEPELIN'S views will be accepted is an interesting question. His authority is certainly of the highest, and his method by which he reaches his conclusions, the careful and thorough research into the after-history of his patients, gives them the very greatest weight. The fact that he was able to follow the careers of a thousand cases of mania after discharge shows the range of his clinical observation, far exceeding the possibilities with many of his less favored co-workers in this department. It will be, nevertheless, with something of a strain, that alienists will give up their time-honored views to take up others, new and altogether different from those they have been accustomed to hold. The publication of these, however, will undoubtedly excite fuller anamnestic research in all quarters, and thus prove a most valuable stimulus for work in a direction that has perhaps been hitherto too much neglected. It will also lead to a more careful diagnosis and scrutiny of individual cases, and the separation of the exhaustion and toxic types from those that fall more properly under the class considered by KRAEPELIN. There is no doubt at all that cases of confusional insanity are very often diagnosed as mania, as pointed out by Dr. W. L. WORCESTER, and the same is true of the post-febrile, toxic and exhaustion deliriums. Excluding these, it may very possibly be true, as KRAEPELIN holds, that mania and melancholia are indications of constitutional taint and incurable disorder.

THE SMOKE NUISANCE; A FABLE.

The editor of the *Glasgow Sanitary Journal*, August, seeks to show in fable that the abolition of smoke nuisances is a possibility. He places his chief reliance upon the developments of science, giving experience the go-by, saying:

One day Experience, Inexperience and the Scientific Mind met at a congress and shook hands. They began talking about the weather.

"What a beautiful morning!" exclaimed Inexperience.

"Wind in the north," said Experience. "It will be rain by evening."

"Then we shall see the rainbow," said the Scientific Mind.

"I wonder," said Inexperience, "when we shall control the weather, like the man in Rasselas."

"Never," said Experience. "The thing is a demonstrated impossibility."

"And yet," gently, as to himself, said the Scientific

Mind, "but yesterday I first spoke to the antipodes; but to-day I listened to the stored voices of my dead; but even now, I have seen with these eyes the cast shadows of the skeletons we are within the flesh. To-morrow, what shall I not see and hear?"

"Yes, yes," said Experience. "The telephone, the phonograph, the X rays, and all that. But that sort of thing can not go much further; there is not much more to know, else we should know it."

"On the contrary," said Inexperience, "we know nothing yet, comparatively."

"*You* speak for yourself," said Experience.

"For us all!" said the Scientific Mind, humbly.

"How?" inquired Experience, surprised.

"As thus," said the Scientific Mind. "Glasgow is sick with fog, which is a cloud, which is the rain. Why? Glasgow burns coal, which is smoke, which makes the fog blanket, which slays the sunlight, which is health."

"That's old news," said Experience. "But what do you propose to do?"

"Burn coke," said the Scientific Mind.

"I never thought of that," said Experience.

"Of course not," said Inexperience. "Who said you did?"

"Think of it now," said the Scientific Mind.

So they shook hands again and went their ways.

We might add that in all human probability coke was *not* accepted by any considerable number of the people, and the smoke and black fog continue to have it all their own way.

A MEDICAL SATIRIST OF MEDICINE.

Medicine in France in the seventeenth century was the peculiar theme of satire; probably for the same reason it is a safe mark for newspaper sarcasm to-day. The sensation mongers who dare not attack the rupture-curers, advertising quacks, patent medicine men or abortifacient mongers, openly assail medical men on the ground that it amuses the public and does not hurt medical science. Precisely the same regard for the sacred cash box prevented the French satirists from attacking the despot LOUIS XIV. and caused his brutal aristocracy and plutocracy to concentrate their venom on the physician. MOLIÈRE was an expert in this. He had a quasi-medical predecessor to whom he was probably much indebted. BERTRAND HARDOUIN DE ST. JACQUES (1598—1648) entered upon the study of medicine at the University of Montpelier. For unusually outrageous contempt of the boundaries of property, he was expelled and became first a traveling quack and then naturally gravitated into a strolling player. He came to Paris and, under a false name, entered the Bourgogne theater troupe, where his satire against medicine was so renowned that MOLIERE, then a youth, was brought to the theater by his grandfather to see ST. JACQUES play. The Paris physicians took the satire good humoredly and were often auditors. After eight years of Paris stage life, ST. JACQUES obtained a medical degree through the influence of Cardinal MAZARIN, and thenceforth practised medicine reputably till his death. ST. JACQUES had something of the degenerate in his make-up, for: "He was a large brunette with dark sunken eyes and flat frog nose, who resembled a huge monkey and did not even need a mask on the stage, as he wore a natural one."

ANOTHER DONATION TO THE NEWBERRY LIBRARY.

Professor DE LASKIE MILLER of Chicago, has given his entire collection to the Newberry Library. It was one of the most complete private collections in the city, not made up of periodicals and miscellaneous books, but composed of standard works of all the best authors from the earliest times to the modern; such a collection as a teacher desiring to keep abreast of the times would naturally purchase.

The library contains about 600 volumes of carefully selected standard works. Those relating to obstetrics and diseases of women and children, are noticeable.

Such libraries as these, like keen tools in the hands of the master workman, are valuable as a whole, not merely on account of the intrinsic merits of the component parts. The books when selected in this way by a skilled hand, have a reference to each other as close and enduring as the inlaid pieces of a Florentine mosaic.

But to use books rightly one must know them. The elder D'ISRAELI said that one might as well fill a room with musical instruments and expect to be an expert musician by mere contact, as to expect a man to become a literary man by the mere possession of books. And so we must turn to the great libraries for the production of our future literary men, and when the right man, comes in contact with the working collection of a worker in his profession, we may expect great results.

WASHINGTON AND HIS PHYSICIAN'S BILL.

Physicians who are drawing pessimistic auguries from the difficulty with which collections are made during the present year, may take some comfort from the fact that, on the eve of the first election for President of the United States, the financial difficulty was such as to affect GEORGE WASHINGTON, the Father of his Country, the unanimous choice of his countrymen for President, in the payment of his physician, Dr. CRAIG. In a letter to the latter dated Aug. 4, 1788, WASHINGTON says:

"With this letter you will receive the horse I promised you, and which I now beg your acceptance of. He is not in such good order as I could wish, but as good as my means would place him. I also send you thirty pounds cash for one year's allowance for the schooling of your son G. W. I wish it was in my power to send the like sum for the other year, which is now about or near due, and that I could discharge your account for attendance and ministerings to the sick of my family; but it really is not, for with much truth I can say I never felt the want of money so sensibly since I was a boy of fifteen years old, as I have done for the last twelve months and probably shall do for twelve months to come.

"Sincerely and affectionately, I am yours, etc.,

"GEORGE WASHINGTON."

PUBLIC HEALTH.

Typhoid in Columbus, Ohio.—All physicians of this city are required to report the presence of typhoid fever within twelve hours after having become advised of it. Such is also the rule in cases of smallpox, scarlet fever and diphtheria.

The Pennsylvania State Quarantine Board.—This Board met in Philadelphia October 5. Dr. Boening the State Quarantine physician reported for the month of September as follows: Number of vessels permitted up from quarantine during the past month 94, all of which were in good sanitary condition. These vessels were classed as follows: Steamships, 57; schooners, 19; barks, 15; brigantine, 1; ships, 2. They were laden as follows: Single cargo vessels, 49; general cargo vessels, 25; water ballast, 17; solid ballast, 3. Of the foregoing vessels 18 carried passengers, with a total of 1771.

Measles and Diphtheria in Sioux City.—The city is threatened with an epidemic of measles. At least that is the opinion expressed by Health Officer Dr. J. M. Henry. The Doctor when the first case was reported a few days ago looked it up thoroughly as it is something unusual to have measles at this time of the year and it is regarded as a serious matter. With the cold weather coming on he says the disease, however slight, may develop into catarrh, bronchitis and lung trouble. The Doctor found that the child had been attending the Jennings street school until the day it became so sick that a physician had to be called. Several other cases were immediately reported after the first one, and the Doctor attributes them to the exposure to the first case, as the children all attended the same school. He says that parents should exercise more precaution and not send their children to school when they know them to be sick or threatened with some disease. Some people are of the opinion that the quarantine is not so important in a case of measles but the Doctor says it is just as rigid as in a case of smallpox and if the parents do not pay attention to this fact they will be dealt with according to law. Aside from the measles several cases of diphtheria have been reported to the health officer from different parts of the city. A diphtheric child rode in the conveyance provided by the school board for carrying children from the outlying districts northwest of town to the West side and an epidemic is feared. At the suggestion of Superintendent Kratz the conveyance will not be run for several days until there are some new developments and the children will thereby be given a holiday.—*Sioux City* (Iowa) *Tribune*, Oct. 3.

An Epidemic of Fevers.—Diphtheria was reported to the Iowa State Board of Health yesterday at Dubuque, Conway and Blockton, Taylor county; Downs, Wright county; Fertile, Worth county; Clear Lake township, Hamilton county; Early, Sac county, and scarlet fever at Woodbine, Harrison county, and at Dubuque. Speaking of the epidemic at Dubuque, the *Globe Journal*, of that city says: "Scarlet fever and diphtheria are spreading to an alarming extent in Dubuque. Four cases were reported this morning by Sanitary Officer Starr to the city health physician and cards tacked upon the infected houses. These diseases are confined to children between the ages of 5 and 16 years and are becoming so prevalent that the question of dismissing the schools is being seriously considered. There is a great deal of complaint about people who remove cards from their houses before the time provided by the ordinance. The latter provides that a card placed on an infected house shall not be removed for thirty days. A case was reported to the sanitary officer a day or two since where a lady tore a card down from her house that ought not to have been removed until the 18th of this month and another case was reported where a policeman without any authority whatever removed a card. Under the ordinance these persons are liable to arrest and prosecution and they have no more right to remove a card and go unpunished than have the most humble individual in the city. The board of health should order that the cards be replaced. When a card is removed people suppose that there is no further liability to catching the disease placarded, and it can therefore be readily seen what danger children are exposed to who happen to visit such houses or play with the children who have had the disease. It is said that in some cases physicians attending children afflicted with diphtheria and scarlet fever told their parents that it was not necessary to keep the cards out after the children were up again. This is a matter that the public is deeply interested in and the health officer and the board of health will be held reponsible for the strict enforcement of the ordinance. The parties who have removed the cards should be compelled to put them up again and comply with the law. If this is not done, others may contract the disease. There are now about seventy cases of the two diseases in this city."

Health Report of New York State for August, 1896.—The *Bulletin* of the State Board of Health of New York, publishes the following summary of the deaths, and rates of deaths by principal causes, for August. During August was exprienced the disastrous hot wave beginning on the 6th of the month and continuing ten days, and causing an almost unprecedented mortality among adult males, the aged and the infirm. The actual and proportional mortality among children under five years were decidedly lower than in July.

The marked deviation from the ordinary mortality of the month, during which there have been reported 12,475 deaths, which is 1,600 more than in the corresponding month of last year, is attributable mainly to deaths from the direct effects of heat (sun stroke), occurring mostly during the early part of the month, 1,125 deaths from this cause having been reported; 1,040 were reported from New York city and Brooklyn, the recorded deaths occurring mostly in the maritime and Hudson valley districts. These are reported under deaths from accident and violence. There is also, compared with August, 1895, an increase in the reported mortality from diseases of the urinary, nervous and circulatory systems, and also in deaths from old age and from unclassified causes. There was no material variation in the mortality from zymotic diseases and consumption, the number of deaths from diarrheal diseases being about the same as last year. The death rate was 23.25 against 20.40 in August, 1895. Compared with the preceding month there was a daily average mortality of 402 against 408 in July; the zymotic mortality was less by 750 deaths, the decrease being in the deaths from diarrheal diseases, from which there were 2,326 deaths, or nearly 19 per cent. of the total; a large number are reported from dysentery, affecting adults. There was also a decrease in the mortality from diphtheria, from which there were 257 deaths, a smaller number than in any month for the past ten years, August being generally the month of its smallest prevalence. Scarlet fever has almost disappeared from the reported causes of death, but 15 deaths being reported from the maritime district and 4 from the rest of the State. Whooping cough increased to 119 deaths; uniformly more deaths occur from this cause in August than in any other month, the average for the past ten years being 125 against an average of 90 for the other months of the year. There is the customary increase in deaths from typhoid fever, which caused 171 deaths, the average for the month. Of deaths from local diseases, the only material variation is in those of the digestive system, from which there were 200 fewer than in July. From the cause stated the reported mortality from accidents and violence is largely increased. The average mean temperature of the month was 1 degree above the normal, but during the first half there was a remarkably prolonged period of excessive heat; the mean highest temperature was 92 degrees, while the mean lowest was 44 degrees, and there was a mean relative humidity of 72 per cent. and in the

eastern part of the State of 78 per cent. There was an unusual number of cloudless days, the mean barometer was 30.02, and the rain-fall generally deficient.

New French Sanitarium for Tuberculous Children at Saint Trojan.—The President of the Republic recently inaugurated this new institution on the southwest seacoast (Ile d'Oleron), erected at an expense of about $120,000 to the state, under the superintendence of Dr. Bergeron, perpetual secretary of the Académie de Médecine. Its official purpose is to hospitalize scrofulous children for tuberculosis. The drinking water is sterilized by the new Desmaroux system, at an expense of five centimes the cubic meter, and according to experts in bacteriology, "realizes the last word" in sterilization.—*Prog. Méd.*, September 28.

An Island Sanitarium.—According to the *'Tiser*, one of the islands in Boston Bay is to be made a summer sanitarium for sick children, and steps are to be taken immediately to carry out the plan. Dr. W. G. Macdonald, the city physician, is credited with the origin of the plan, and it is said that the City Board of Health and the mayor actively favor it. It is proposed to take the small island, just beyond the iron pier at Marine Park, South Boston. It is 160 feet in diameter and unused at the present time, although it is under the jurisdiction of the park commissioners. It is contemplated to erect tents and place a milk plant in operation. The doctors and nurses will probably be furnished from the City Hospital. The location selected is a most desirable one for many reasons. The island can be reached from any section of the city by electric cars to City Point during the day or evening. There will be an out-door and in-door patients' department, and the chances of saving a baby's life will be much better on the island than at the home. About a week ago Dr. Macdonald called upon Mayor Quincy and unfolded the scheme, which was favorably received by his honor, after learning the facts and figures. The large number of deaths during the two months was astonishing to him. Dr. Macdonald wrote to Conrad Reuter, Secretary of the Boston City Hospital trustees, in relation to the matter, and they will consider the scheme at their next meeting. The letter follows:

"For some time past I have been considering the question of infant mortality in Boston during the summer months, and I have been more and more impressed with the idea that our present means of care and treatment of the little ones are inadequate. During July and August of the current year, there were reported to the Boston Board of Health 2,438 deaths from all causes, and including all ages. Of these 919 were infants less than 1 year old. Four hundred and ninety-two were classed under the head of 'cholera infantum.' If we add to this 492, those which were classified as 'enteritis,' 'gastro-enteritis,' 'diarrhea,' etc., we will have a total of nearly six hundred and fifty deaths directly attributable to the weather conditions of these months. Thus we see that during the heated term more than a third of the total deaths occurred in infants under 1 year, and more than a fourth were due to preventable causes. These figures have a pathetic eloquence of their own. We have at the present time two noble charities engaged particularly in the care of the suffering babies. I mean the floating hospital and the Hospital at Rainsford's Island. Both were inaugurated as private charities although one has become a public charge since. No improvements could be made on the methods of treatment now in vogue in these two institutions, since one is under most careful and intelligent management and the other is under the directorship of Dr. T. M. Rotch, a gentleman who has no superior in the treatment of infantile ailments. Both, however, have the same disadvantage in caring for acute cases, in that boat service is an integral part of both systems. Boat service means a fixed time for reception, and if that time be exceeded there is a delay of twenty-four to forty-eight hours. Every physician knows that a delay of even minutes may mean the life of the infant. Therefore, it seemed to me that if we could procure a site for an infant's summer hospital, which would combine the benefits of the salt water breezes with accessibility at all times, we would be able to reach a large number of cases which are not now treated. We would then not supersede but powerfully assist the work now going on, in the directions which I have specified.

"Such a site does exist in the artificial island at the end of the iron pier at the Marine Park, City Point. We have there a pier extending into the bay for a distance of 2,640 feet, and leading out from a park which is itself almost surrounded by salt water. Beyond the end of the pier an artificial island has been built, which is yet unused, and which will be unused for some time. This island is about 160 feet in diameter, a space ample for our purpose. Having consulted with the secretary of the park commission on the matter I am satisfied that there would be no trouble in securing this place. It is ideally situated, and remains cool during the hottest days in summer. In using this island for hospital purposes, we encroach on no one's rights, since it has been hitherto unused. As it is intended for use only during the summer months, a tent hospital would be all sufficient and Mr. Matthew Sullivan, chief of the architect division of the city of Boston, assures me that a few marquees at this place would not detract from the architectural beauties of the park, but would really add to the general effect by giving the whole place a holiday aspect. Such a hospital would be extremely inexpensive. Its first cost would include simply a few tents and some carpentering. No solid buildings and no costly furnishings would be needed. Then would come the question of supplies, and the assistants, who perhaps could be transferred from the central hospital. As to the management of such an institution I see no way in which it could be done so thoroughly, so scientifically and so economically as through your boards. Your physicians, nurses and attendants have had experience in tent work, and you have already a completeness of organization which could only be effected by any other body at the expense of much time and labor. Besides, the poorer people are acquainted with your work and have confidence in it. Mothers would thus be willing to intrust their babies to your care. Physicians, too, understand the routine by which a patient may be admitted to the Boston City Hospital, and I am satisfied that they would be extremely pleased to have a station to which they might send their infant charges with as little trouble as is now necessary to secure hospital treatment for adults. This communication is sent to you at the suggestion of his honor, Mayor Quincy, with whom I have conferred on the matter."

The trustees will hold a meeting in a short time, and it is expected that they will do all in their power to make the scheme a success.

BOOK NOTICES.

A Text-book for Training Schools for Nurses, including physiology and hygiene and the principles and practice of nursing. By P. M. WISE, M.D. With an introduction by Dr. EDWARD COWLES. In two volumes. Vol. I. New York and London: G. P. Putnam's Sons, 1896.

The purpose of the book as stated by the author is "to provide a text-book that will suffice for all the recitations in a two years' course in training schools for nurses." "The course adopted" in these volumes, says the author, "is based upon the hypothesis that a nurse must understand the fundamental principles of physiology and hygiene before a rational understanding of the principles of nursing is possible." The first volume is therefore preparatory, being intended for the first course, and the second volume for the principles and practice of nursing. The book is dedicated to that veteran hygienist and superintendent, Dr. Edward Cowles.

A System of Surgery, by various authors. Edited by FREDERICK TREVES, F.R.C.S. Vol. II, with two colored plates and 487 illustrations. 8vo, cl., pp. 1120. Philadelphia: Lea Brothers & Co., 1896.

This volume concludes the work, and will add very considerably to the surgical literature of the period. It includes "Injuries and Diseases of Muscles and Tendons," by W. Arbuthnot Lane; "Surgery of Deformities," by H. H. Clutton; "Injuries and Diseases of the Head," by H. P. Dean; "Injuries and Diseases of the Spine," by W. H. Bennett; "Concussion of the Spine," by H. W. Page; "Diseases and Injuries of the Ear," "Diseases of the Nose," by A. Marmaduke Sheild; "Injuries and Diseases of the Neck," by Bernard Pitts; "Surgery of the Chest," by Pearce Gould; "Affections of the Mouth, Palate, Tongue, Tonsil and Pharynx," by H. F. Waterhouse; "Affections of the Esophagus," by W. Bruce

Clarke: "Injuries and Diseases of the Abdomen," and "Hernia," by F. Treves; "Diseases of the Rectum," by Charles B. Ball; "Diseases of the Breast," by W. Watson Cheyne; "Injuries and Diseases of the Urinary Organs," "Injuries and Diseases of Testes, Scrotum and Penis," by Henry Morris, and "Injuries and Diseases of the Female Genital Organs," by J. Bland Sutton. The illustrations are copious but not very well worked out owing to the thin paper. Many of them are original. This system is an excellent exponent of *fin de siecle* British surgery.

Medical and Dental Colleges of the West. Historic and Biographic, Illustrated in photogravure and steel. Edited by H. G. Cutler. Full gilt, quarto, pp. 639. Chicago: Oxford Publishing Company, 1896.

This is the Chicago volume and only one published of a series in which the other western cities are to take their turn. So far as we can judge the work has been committed to trustworthy hands. The history of Rush Medical College was written by Prof. Norman Bridge and Dr. John Edwin Rhodes; the Northwestern Medical College by Prof. S. J. Jones; the Woman's Medical School by Prof. Marie J. Mergler; the College of Physicians and Surgeons by Profs. D. A. K. Steele and William E. Quine; the Chicago College of Dental Surgery by Prof. Truman W. Brophy; the Northwestern University Dental School by Prof. Edgar D. Swain; the Chicago Policlinic by Prof. Truman W. Miller; the Post-Graduate Medical School by Prof. W. Franklin Coleman; Harvey Medical College by Prof. Frances Dickinson, and other schools sectarian in character by those of their own sect. In addition to the school histories, biographies of those connected with the several schools are given and in many instances of prominent alumni. The work is handsomely printed on fine paper and bound in morocco. As an authoritative work on the subject it is not likely to be superseded for many years to come.

Anatomy; Descriptive and Surgical. By Henry Gray, F.R.S. A new edition, thoroughly revised by American authorities, from the thirteenth English edition. Edited by T. Pickering Pick, F.R.C.S., with 772 illustrations, many of which are new. Pp. 1250. Philadelphia and New York: Lea Brothers & Co. 1896.

When a book reaches its thirteenth edition and has become a standard authority in two hemispheres, there is little to say by way of review.

We can only congratulate the editor on the new edition, the publisher for the munificent way in which he has supplied the fine paper, the beautiful illustrations and the superb binding.

The new American edition, however, is something more. Certain sections have been rewritten, viz., those on the brain, the teeth and the abdominal viscera. Dr. B. B. Gallaudet, Dr. Fred. J. Brockaway and Prof. J. Playfair McMurrich have had charge of the American revision.

The Medical and Surgical Uses of Electricity. By A. D. Rockwell, A.M., M.D. Illustrated with two hundred engravings. New edition. New York: William Wood & Co.

No praise could be too high to give this standard book, which is essentially the ninth edition of the well-known "Beard and Rockwell." The work has been brought down to date, as one may easily satisfy himself by examining the chapter on electrosurgery, which has included the Roentgen ray and the directions for its use. "Rockwell" will be turned to as a book which has not disappointed its possessor.

A Manual of Pharmacology and Therapeutics. By William Murrell, M.D., F.R.C.P., Physician to and Lecturer on Pharmacology at the Westminster Hospital; late Examiner in Materia Medica in the University of Edinburgh, and Examiner in Materia Medica and Pharmacy to the Conjoint Board of the Royal College of Surgeons of England, and the Royal College of Physicians of London. New York: William Wood & Co. 516 pages.

The friends of Dr. Murrell in this country, and they are many, will be extremely glad to welcome this book, which, although not exhaustive, is yet eminently scientific and practical. The American edition has been revised by Dr. Frederick Caswell of New York. The book includes a very entertaining introduction, in which the general principles are given: Pharmacology of Organic Substances; Pharmacology of Synthetic Compounds; Pharmacology of Drugs of Vegetable Origin; Pharmacology of Drugs of Animal Origin.

Annual Report of the Board of Health and the City and Port of Philadelphia for the year 1895.

The volume is included in a city document containing the first annual message of Mayor Warwick, and the Director of the Department of Public Safety. The Board reports that the death rate, while slightly in excess of 1894, was rather better than the average for the last ten years, being but 20.44 per 1,000. In regard to antitoxin in diphtheria the Board says: "Antitoxin as an immunizing agent has been used so very sparingly that its influence in restricting the disease has not been appreciable. Its use as a curative means has been considerable but far from universal, and while its efficacy may have been demonstrated in many cases, its use has been too limited as yet to exercise a marked limiting effect upon the disease." A laboratory of bacteriology was established at a a cost of $15,000. The report shows a vast amount of excellent sanitary work during the period covered by the report.

The Juggernaut of the Moderns; A novel. By Rosa Hudspeth. The Arena Publishing Company, Boston, Mass. 1896. Price 50 cents.

This book is one that has no place in the modern household, nor should it be placed in the hands of the miscellaneous reader. Those interested in sociology will find the book entertaining. The story is of the ruin of a young woman who goes to a Western town as a typewriter. She is is pictured by the authoress as of surpassing beauty, of course, but owing to the fact that she must wear a corset, and displace the abdominal organs, is subject to attacks of hysteria. Such a condition naturally makes the subject a fit victim for the wiles of the hypnotist, and her struggles against the dominant influence, and final overthrow, form the materials for the book. *Cui bono?*

Kemp & Co.'s Prescribers' Pharmacopeia. A synopsis of the more recent remedies, official and unofficial, with a therapeutic index. Third edition. Bombay: Kemp & Co., Ld. 1896.

We have tested this book for its account of several of the newer remedies and find it quite accurate, so far as our test goes. There is no doubt but it will be found useful in many countries beside India, for which it was originally prepared. The additions to the last revisions of the British and U. S. Pharmacopeias are included in this work. It appears there has been no revision of the Indian Pharmacopeia since the edition of 1868.

The compilation has been well done; the arrangement is systematic and convenient.

Transactions of the Forty-sixth Annual Meeting of the Illinois State Medical Society, held in Ottawa, Ill., May 19, 20 and 21. Chicago, 1896.

This volume is characterized by its directness throughout. The transactions are singularly free from superfluous verbiage, and the authors, as a rule, plunge *in medias res* without any circumlocution. The tendency of the time is shown by the appearance of a Committee on Society History, which, a footnote informs us, is composed of those members who have held continuous membership for forty years. Although several of the papers have been printed in this Journal many of them have not been elsewhere printed. The Society will next year meet at East St. Louis and the Missouri State Medical Society will meet at St. Louis at the same time. We notice that a joint committee has been appointed to act with a similar committee from the Missouri State Society to make arrangements for one day's joint meeting.

An American Text-book of Applied Therapeutics for the Use of Practitioners and Students. Edited by J. C. WILSON, M.D., Philadelphia, assisted by AUGUSTUS A. ESHNER, M.D., Philadelphia. The authors are I. E. Atkinson, Baltimore; Sanger Brown, Chicago; John B. Chapin, Philadelphia; Wm. C. Dabney, Charlottesville, Va. (deceased); John C. Da Costa, Philadelphia; I. N. Danforth, Chicago; John L. Dawson, Charleston, S. C.; F. X. Dercum, Philadelphia; George Dock, Ann Arbor; Robert T. Edes, Boston; Augustus A. Eshner, Philadelphia; J. T. Eskridge, Denver; F. Forchheimer, Cincinnati; Carl Frese, Philadelphia; Edwin E. Graham, Philadelphia; John Guitéras, Philadelphia; Frederick P. Henry, Philadelphia; Guy Hinsdale, Philadelphia; Orville Horwitz, Philadelphia; W. W. Johnston, Washington, D. C.; Ernest Laplace, Philadelphia; A. Laveran, Paris, France; James Hendrie Lloyd, Philadelphia; John Noland Mackenzie, Baltimore; A. Lawrence Mason, Boston; Charles K. Mills, Philadelphia; John K. Mitchell, Philadelphia; W. P. Northrup, New York City; William Osler, Baltimore; Frederick A. Packard, Philadelphia; Theophilus Parvin, Philadelphia; Beaven Rake, London, England; E. O. Shakespeare, Philadelphia; Wharton Sinkler, Philadelphia; Louis Starr, Philadelphia; Henry W. Stelwagon, Philadelphia; James Stewart, Montreal; Charles G. Stockton, Buffalo; James Tyson, Philadelphia; Victor C. Vaughan, Ann Arbor; James T. Whittaker, Cincinnati; J. C. Wilson, Philadelphia. Price, cloth, $7; sheep, $8. Philadelphia: W. B. Saunders.

This is a book about the same size as the text-book on surgery, and the others of the American text-book series.

We note with pleasure that the metric system of dosage has been applied throughout, in addition to the old apothecary doses for those who do not care to employ the modern form. We regret to see that in the article on actinomycosis, the author has failed to notice the work of the Agricultural Department of our Government in this matter, and we believe that the use of potassium iodid was first promulgated by this bureau, and that the foreign authors are not entitled to priority in the matter. We trust that Dr. Salmon will be a little more liberal in the distribution of the valuable documents of the Department of Agriculture, Bureau of Animal Industry; they may in time reach the book-writers.

The Tonic Treatment of Syphilis. By E. L. KEYES, A.M., M.D. Revised edition; 8vo, cl., pp. 78. New York: D. Appleton & Co. 1896.

The author holds in this essay that "mercury in small doses is a tonic, because under it the general vitality is improved and the number of red blood cells increased."

Twenty years have passed since Professor Keyes gave his views on this subject, and we think he has a right to claim that his position has been fully sustained, and to him more than to to any other one man has been due the disappearance of professional prejudice against the use of mercury, in many forms of the disease.

The Transactions of the State Medical Society of Wisconsin, for the year 1896, with the Constitution and By-laws and list of members. Cloth, 8vo, pp. 593. Madison, Wis.: Tracy, Gibbs & Co. 1896.

This meeting of the Society being the semi-centennial anniversary of its foundation it was decided to make it of a popular character and of direct benefit to the people. All papers therefore were upon hygienic topics. The volume thus produced is a very creditable one and shows a high state of learning in the principles of sanitary science by the Wisconsin faculty. We doubt if there are many States in our Union where current topics in hygiene would have received as intelligent treatment. The volume concludes with the obituaries of deceased members and the statistics of local societies. Secretary Sheldon has edited the volume with his usual skill and precision. The next annual meeting will be held at Racine on the first Wednesday in May, 1897.

Transactions of the Medical Society of the State of Pennsylvania at its forty-sixth annual session, held at Harrisburg, 1896. Vol. XXVII. Published by the Society, Philadelphia, 1896.

Beside the usual number of valuable medical and surgical papers in this volume there is a very interesting summary of the proceedings of the Society from its original meeting by Permanent Secretary William B. Atkinson. The volume is well arranged and has an excellent index. Pittsburg was selected as the next place of meeting. The minutes are very full and show the active interest taken in various matters other than pure medical science by the Pennsylvania brethren. This society sets a good example to sister societies by devoting a page in its Transactions to the AMERICAN MEDICAL ASSOCIATION, explaining the method of obtaining membership and giving a favorable notice to the JOURNAL.

Feeding in Early Infancy. By ARTHUR V. MEIGS, M.D. Octavo, flexible cloth, pp. 15. Price 25 cents. Philadelphia: W. B. Saunders. 1896.

This essay was one read at the meeting of the Philadelphia County Medical Society, April, 1896. The article discusses the composition of milk, and gives methods of imitating human milk by proper treatment of cow's milk.

Practical Points in Nursing for Nurses in Private Practice, with an appendix, etc., by EMILY A. M. STONEY, etc.; pp. 456. Philadelphia: W. B. Saunders. 1896. Price $1.75 net.

In this book the author has rather successfully covered the topics of the entire range of private nursing, and how to meet the various emergencies when distant from medical aid, convenient tables, a dose list in old apothecaries' weights, and a glossary conclude this excellent volume.

A Manual of Obstetrics. By W. A. NEWMAN DORLAND, A.M., M.D., with 168 illustrations in the text and 6 full-page plates. Philadelphia: W. B. Saunders. 1896. Price $2.50 net.

This is a well-written text book, containing the essential knowledge of the art. The illustrations are numerous and clear, and the work will be found sufficiently comprehensive to meet ordinary wants.

Peroxid of Hydrogen (Medicinal) Glycozone, Hydrozone and Eye Balsam. By CHARLES MARCHAND. Treatment of diseases caused by germs, bacteria and microbes. Eleventh Edition, pp. 216; Paper. New York, 1896. Sent free on application.

This book contains direction for using the above preparations, and a number of articles by medical writers based upon their experiences with these drugs, which have appeared in the various medical journals.

ASSOCIATION NEWS.

The Rush Monument.—The Rush Monument Committee has sent the following circular to the Regular profession, which we hope will be heeded:

My Dear Doctor:—The remarkable success of the relatively small body of homeopaths in the United States, in collecting $75,000 for their monument to Hahnemann to be erected in the city of Washington, ought to make every reputable regular physician in the country keenly alive to the necessity for promptly subscribing to the fund for the long-delayed monument to Benjamin Rush.

The model for the monument to Hahnemann, which has been on exhibition in New York city, has attracted general admiration on account of its great beauty and artistic excellence, which will make it unrivaled as a work of this kind.

The regular medical profession, numbering over one hundred thousand more than the entire body of homeopaths, has thus far subscribed less than $4,000 toward the projected monument to Dr. Rush, for which the Navy Department has already generously designated a commanding site in the park fronting the U. S. Naval Museum of Hygiene, where it will be one of the most conspicuous features of the National capital.

Are the regular physicians of the United States willing that this illustrious signer of the Declaration of Independence and the distinguished medical hero of the Revolution, shall be

commemorated by an insignificant bust or a mediocre statue, in pitiable contrast with the splendid testimonial at their capital city to a foreign theorist by a comparatively small body of his misguided followers? The crowds of visitors to Washington can not fail to attach a disparaging significance to the spectacle of these two monuments; and we appeal to you to aid the Committee in its endeavor to do justice to the memory of this great father of American medicine pure and undefiled, by sending *by return mail* to either of the undersigned as large a contribution as you may be able to make.

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GEORGE H. ROHE, M.D., Sec. and Treas., R. M. C., Sykesville, Md.
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HENRY D. HOLTON, M.D., Treas. Am. Public Health Association, Brattleboro, Vermont.
CHARLES MCINTIRE, M.D., Sec. and Treas., Am. Academy of Medicine, Easton, Pa.

PRACTICAL NOTES.

Artificial Respiration for Infants.—Laborde's method of artificial respiration by rhythmic traction of the tongue is recommended in the *Cbl. f. Ginek.* No. 28, as especially adapted for newborn infants. There is none of the painful impression produced on the witnesses by balancing the infant, and it can even be treated while in a warm bath. In one case traction repeated forty times recalled the babe to life after 600 oscillations had failed to produce any effect. The infant died eight hours later, and numerous cutaneous and subcutaneous lesions were found, evidently caused by the balancing. The traction had only caused ecchymosis at the tip of the tongue, in the palatine arch, in the cellular tissue back of the esophagus and in its mucosa. These lesions should be known as they might have a medico-legal bearing in cases of suspected suffocation—*Bulletin Méd.*, September 9.

Transverse Resection of Tuberculous Kidney.—Bardenheuer, some years ago, proved experimentally the possibility of this operation, and Czerny, Kummell, D'Antona also have affirmed that it could be performed on man. Bardenheuer has recently applied it to a couple of patients found on investigation to have the lower part of the kidney affected with tuberculosis. He made a transverse section and cut off section after section until absolutely healthy tissue was reached. The first case was much enfeebled from traumatic suppuration in the region four months previously, with intermittent fever, and the patient succumbed five hours after resection of the kidney, although the operation had been completed in twenty-five minutes, and had been attended with scarcely any loss of blood. The other case recovered with no complications. For a month urine oozed into the dressing, which was changed every day. After this period the wound healed and the patient recovered rapidly. The indications for resection in such a case are strict limitation of the lesion to a part of one kidney and no traces of infection in the ureters or small pelvis.—*Deutsch. Zeitschrift f. Chir.* No. 6.

The Surgical Treatment of Focal Epilepsy.—From a critical analysis of the results in nineteen cases Drs. B. Sachs and A. G. Gerster draw the following conclusions:

1. Surgical interference is advisable in those cases of partial epilepsy in which not more than one, or at the utmost two years, have elapsed since the traumatic injury or the beginning of the disease which has given rise to the convulsive seizures.

2. In cases of depression or other injury of the skull surgical interference is warranted even though a number of years have elapsed; but the prospect of recovery is brighter the shorter the period of time since the injury.

3. Simple trephining may prove sufficient in a number of cases, and particularly in those in which there is an injury to the skull, or in which a cystic condition is the main cause of the epilepsy.

4. Excision of cortical tissue is advisable if the epilepsy has lasted but a short time, and if the symptoms point to a strictly circumscribed focus of disease.

5. Since such cortical lesions are often of a microscopic character, excision should be practiced even if the tissue appears to be perfectly normal at the time of operation; but the greatest caution should be exercised in order to make sure that the proper area is removed.

6. Surgical interference for the cure of epilepsy associated with infantile cerebral palsies may be attempted, particularly if too long an interval has not elapsed since the beginning of the palsy.

7. In cases of epilepsy of long standing, in which there is in all probability a widespread degeneration of the association fibers, every surgical procedure is useless.—*Am. Jour. Med. Sciences*, October.

Albuminuria in Pregnancy and Parturition and Its Relations to Eclampsia.—The *British Medical Journal* quotes Saft, in the *Archiv für Gynäcologie*, as saying that albuminuria occurs during the latter half of gestation in 5.41 per cent. of all cases, more frequently toward the end of pregnancy and oftener in primiparæ (5.9 per cent.) than in in multiparæ (4.1 per cent.); it is more common also in the former (32.08 per cent.) than in the latter (22.6 per cent.) during labor. As a rule it disappears within a few days after delivery, but is more likely to persist in primiparæ, in whom the effects of gestation upon the kidneys are altogether much more serious than in multiparæ. White and red corpuscles in non-albuminous urine of pregnant women come from the bladder, but neither during pregnancy nor labor are cylinders found without albumin, though their presence does not seem to depend on the degree of albuminuria, nor to influence its duration. Twins and hydramnion are predisposing factors, contraction of the pelvis also, but in multiparæ only during labor. Premature labor is a frequent result. There is an affection of the kidney due solely to the condition of pregnancy, the pathologic changes in which are merely degenerative; this affection is quite different from nephritis; when not complicated it is of favorable prognosis and not likely to terminate in chronic inflammation; but when accompanied by actual nephritis, or disease of the heart, is of very doubtful issue. The cause of this affection is probably the auto-intoxication of the system by some product of tissue change, such as is the origin of the molimina graviditatis and of the nervous disturbances of the pregnant state. The muscular exertion during labor throws extra work on the kidneys, and it is the overloading of the system by this poisonous product that causes eclampsia and the secondary changes in the kidneys, liver and other organs. There is thus an intimate, if not a causal connection between albuminuria and eclampsia, and the only proper way to solve the mystery surroundiug the latter is to try to determine the nature of the active poison by observations made during gestation. In the same journal, Schreiber analyzes a large number of cases that have come under treatment since Schauta's report, June, 1880. Of 42,607 confinement cases 137, equal 0.321 per cent., suffered from eclampsia, 19 being already unconscious and many others having had many fits before being admitted to the clinic. Of the mothers 109, 79.5 per cent., were primiparæ; 113 (97 1-paræ) were not more than 30 years old. One only had had eclampsia in a previous (first) confinement (4-para sect. Caes.) Twins are noted 12 times, hydrocephalus, hydramnion and low lateral placenta one each, abnormal rotation twice, abnormal pelvis 9

times, 3 breech cases. The attacks commenced before labor in 16.78 per cent., during it in 62.04 per cent., and after delivery in 21.16 per cent of the cases, and while 53.17 per cent. had less than 5 fits, the average number of fits in 126 was 8. Omitting the 34 children of 29 postpartum cases, of the remaining 115, 37, equal 32.1 per cent., were stillborn, and 56, equal 48.6 per cent., were premature. The fetus in 4 antepartum cases was macerated, but the mothers recovered; nor did prolonged duration of the eclamptic state imply a fatal termination. The central nervous system was affected in 7 women, 6 had puerperal mania. After delivery 62 had no more fits, 5 had only 1, 37 had more than 1, 3 died from Cæsarean section, 29 were puerperal cases. In 50.7 per cent. of the whole, or 64.7 per cent. of the cases before delivery, emptying the uterus had a good effect. In 78 cases operated on (5 induction only) the proportion was 62.7 per cent.; in 27 delivered spontaneously 70.3 per cent. Of 27 deaths (19.7 per cent.) 17 only were due to eclampsia alone (12.4 per cent.). Four fatal cases only were more than 30 years old, but the mortality of multiparæ (6, equal 21.4 per cent.) was greater than that of primiparæ (21, equal 19.2 per cent.). The relative mortality of cases commencing before, during, or after childbirth was 30.43 per cent., 18.82 per cent. and 13.79 per cent. The proportion of deaths is comparatively low, and with the fact shown that delivery without too active interference tends to stop the fits is sufficient to warrant the adoption of conservative treatment for eclampsia, the rather as the woman is spared the dangers inseparable from forced labor. The practice of the Vienna clinic for many years has been a prophylactic milk diet for all albuminuric pregnant women; if this fail, the induction of labor by bougie or colpeurynter. On the outbreak of eclampsia, hot baths, linden tea, wet packing, chloroform and delivery as soon as may be without incisions.

NECROLOGY.

ELISHA GRISWOLD, M.D. (Jefferson Medical College) at Pittsburgh, October 7, aged 68. He was born in Chester, Pa., March 14, 1828. He was appointed in 1861 by Governor Curtin surgeon of the One Hundred and Twelfth Pennsylvania Volunteers, but afterward became acting division surgeon. July 30, 1864, he resigned to accept an appointment by President Lincoln in the corps of United States surgeons. Dec. 14, 1864, he was transferred to the charge of Judiciary Square Hospital, afterward being sent to New Orleans as chief medical examiner of the Freedmen's bureau for the State of Louisiana. In 1867 he was commissioned as lieutenant-colonel. He was a member of the Mercer County Medical Society, the Trumbull Medical Society of Ohio, and other societies. He leaves a wife and two sons.

J. v. KERCHENSTEINER, M.D., Bavaria, aged 65 years. The distinguished hygienist and promoter of medical, pharmaceutic and sanitary progress. His death is a great loss to his country.

JOHN SEIBERT, M.D. (University of Pennsylvania, 1857) Chicago, October 9, aged 78.——George Bonbright Anderson, M.D. (Jefferson Medical College, Philadelphia, 1877) at Latrobe, Pa., October 5.——William Eaton, M.D., Lloydsville, Ohio, October 6.

MISCELLANY.

Foundation of Medico-surgical Urological Society.—This new association recently formed in France, welcomes foreign correspondents, who are requested to apply to Dr. Desnos, 31 Rue de Rome, Paris.

Inefficient Telephone Service in Columbus.—At a recent meeting of the Academy of Medicine of Columbus, Ohio, resolutions were passed reflecting on the telephone service of that town, and a committee was appointed to take proper action in the matter.

Pawtucket (R. I.) Medical Association.—The Pawtucket (R. I.) Medical Association petitioned the city council for the establishment of a modern board of health, without which that city at present languishes.

Dr. B. Mead Bolton, bacteriologist of the Board of Health at Baltimore, Md., has been appointed professor in bacteriology and pathology by the board of curators of the Missouri State University.

Chicago Day was observed thoughout the city October 9. The vast processions required medical attention and the Health Department established stations and furnished ambulance service. It is under existing ordinances clearly the duty of the city physician to attend to the service of this character, but no appropritions have been given the city physician for these purposes.

Dean of the Profession.—Since the death of Dr. Salomon of England, at the age of 106, Dr. Bossy of Havre, France, is now, we believe, the dean of the profession. Dr. Salomon retired at an early age after his marriage to an heiress, but Dr. Bossy has practiced all his life.

Robbed Doctors' Houses.—Two female sneak thieves were arrested in Chicago, October 5, charged with stealing articles from doctors' offices, which they had visited under various pretences. About fourteen physicians have sustained losses at the hands of this precious pair. Umbrellas, vases, clocks and the like were classes of articles taken.

American Methods of Treating Pelvic Suppurations.—As a supplement to the discussion of this subject at the International Gynecological Congress, the *Bulletin Médical* summarizes the views of several of our American surgeons: Noble, Kelly, McMurtry, Sutton, Stone, Cordier, Marcy, F. H. Martin, Treves, Wiggin, Kelsey and Carpenter, Ashby and Penrose, quoting extensively from the addresses and discussions at the Atlanta Meeting, published in THE JOURNAL, Nos. 4 to 6. As has been seen in the report, Byford, Henrotin, Edebohls, Polk and Kelly took an active and important part in the proceedings.

Form of "Charcot's Crystals."—New light has been thrown on this subject by Cohn's recent investigations. He has found that they are not quadratic octahedrons as supposed, but hexagonal double pyramids. The cleavage of the figures found in dried asthma sputum distinctly revealed that they belonged to the hexagonal system. Crystallographic tests also proved essential differences between these crystals and Böttcher's, whose plane of polarization is not parallel to the long axis of the crystal.—*Deutsch. Med. Woch.* 19, from *Deutsch. Archiv f. k. Medicin*, 4 and 5.

Can Not Interfere with Proceedings in Higher Tribunals. The supreme court of Georgia holds, in the case of Baughn v. Wiley, decided April 27, 1896, that proceedings to obtain a commission de lunatico inquirendo, under Section 1,855 of the Code of that State, for the purpose of having a person imprisoned in the jail of a given county sent to the asylum as a lunatic, can not be maintained when it appears that such person has been convicted of murder in another county, is subject to the sentence of death, and was confined in the jail in question under an order of the superior court in which the conviction was had; and that in such case the writ of mandamus will not lie to compel the ordinary of the county in the jail of which the alleged lunatic is confined to entertain jurisdiction of such proceedings.

Methylene Green for Staining Nerve Terminals in the Muscles.—Corominos in the *Revista de Ciencias Medicas de Barcelona*, 3, states that this substance stains the terminal ramifications of the axis cylinders much better than the blue or chlorid of gold. He uses it in a solution of 100 parts of concentrated

aqueous solution of methylene green in 50 parts of absolute alcohol and 1 part acetic acid. He leaves the sections twenty-four hours in this solution, and then makes his preparation with glycerin and salt solution. The nerve fibers take a fine green while the muscle fibers remain a very light color. If left too long the preparation can be decolorized by soaking a while in salt-free glycerin.

Philadelphia Municipal Home for Consumptives Proposed.—Dr. Lawrence F. Flick, President of the Society for the Prevention of Tuberculosis of Philadelphia, has proposed to the city that some suitable spot for a consumptives' home be selected, whereby those cases to be cared for by themselves in a sanitary way and those already cared for by the municipality, shall be gathered in one institution to be managed under municipal regulation. The plan is said to meet with favor by the municipal authorities. It is evident that additional means must be taken to prevent the spread of the disease. This seems practical and, managed under proper conditions, would be an enormous factor in suppressing the disease in a large city.

Essential of Indictment for Attempting to Procure Abortion.—A Vermont statute renders all acts done and performed upon a woman pregnant, or supposed to be pregnant, with intent to procure her miscarriage, criminal, unless the same be necessary to preserve her life. R. L., sec. 4247. Construing it, the supreme court of the State holds, in the case of State v. Stevenson, decided Aug. 21, 1896, that "the same" here refers to the miscarriage, and not to the means to produce a miscarriage, as it can not be said that the thrusting of an instrument into a pregnant woman, who is otherwise in perfect health, is necessary to preserve her life, or that the employment of any of the means commonly used to procure a miscarriage is necessary to preserve her life. Under the statute, if a miscarriage is necessary to preserve the life of a pregnant woman, all acts done with the intent to procure it are declared lawful, but, if unnecessary, criminal. In order to charge an offense under the statute, it is necessary to negative the exception. And the court further holds that an averment that the means employed to procure the miscarriage were not necessary to preserve the life of the woman is not an equivalent to an averment that the miscarriage was not necessary to preserve her life, and that it does not negative the exception.

False Testimony and Suggestion.—Bérillon found by recent experiments that he was able to secure the testimony in regard to imaginary past occurrences, of over twenty out of every hundred persons tested (all over 15), by verbal suggestion alone, and without any preliminary hypnotic maneuvers. The readiness with which he was able to accomplish this was in direct relation to the intelligence of the subject; by no means confined to the lesser developed, but the reverse. He also found that a personal interest assisted the realization of the occurrence; for instance, the subject remained indifferent to a suggested criminal occurrence until he was made to believe that the person in question had spoken injuriously of him, when his attention was at once aroused and the whole imaginary occurrence impressed upon his memory as if he had actually witnessed it. Bérillon states therefore that large numbers of persons possess such suggestibility in the normal condition that it would be easy by verbal suggestion alone, without any hypnotic maneuvers, to cause them to commit unconscious perjury, and that they should not be considered legally responsible if psychologic examination by a medico-legal expert establishes the fact of the suggestion. Magistrates are therefore warned against the possibility of suggesting false testimony to impressionable witnesses by the questions asked and methods of procedure, which may produce the same effects by psychic constraint as the torture chambers of old. See *Journal de Méd. de Paris* for further particulars, September 27.

Inebriety, Insanity and Suicide.—Inebriety, though long continued and resulting occasionally in temporary insanity, the prerogative court of New Jersey holds, in Koegel v. Egner, decided Aug. 17, 1896, does not require proof of lucid intervals to give validity to the acts of the drunkard, as is required where general insanity is proved. Consequently where habitual intoxication is shown there will be no presumption that incapacitating drunkenness existed, for example, at the time of making a will. And if it be conceded that bona fide attempts to commit suicide and accomplishment of suicide, this court further holds it will not follow that such derangement is inconsistent with the ability to make a will. It may exist with testamentary capacity. The court says that we generally attribute the act of self-destruction to a morbid condition of the mind, which may be either fixed insanity or a temporary surrender of reason. It is regarded as being in the latter condition where the object of the intended suicide is to secure relief from present pains, either in realization of affliction (mental or physical), disgrace or disaster, or the impelling cause is the apprehension of such evils; for we can not believe that a mind can be in normal health, even though it be cowardly and skeptic as to the future, if it accepts the uncertainty of the state after death as a relief from present mental or physical suffering. Proof of mere attempt at suicide and suicide, without more, exhibit at best but a temporary mental affliction, having no reference to antecedent or subsequent periods of time.

The Monument of Paracelsus.—In a chapel in Salzburg, Bavaria, stands Paracelsus's monument. It is a broken pyramid, and a niche contains his picture with a Latin inscription commemorating his skill as universal. It also sets forth that he has cured diseases before considered as past help, and the he had left his property to the poor. His coat-of-arms is engraved on the monument, with the motto: *Pax vivis requies æterna sepultis*, peace to the living, the repose of eternity to those who slumber. Perhaps one of the most brilliant minds of the later centuries was Philipp Theophrastus von Hohenheim, or, as he afterward named himself, Paracelsus. His parents were persons of note; the father was a physician of acknowledged ability and the mother the superintendent of the hospital at the Abbey of Maria-Einsiedeln. At this place their child was born in 1493. He grew up in the mountain region and his early instruction received diligent attention. He learned the medical art from his father; then at 16 he became a student at the university of Basel, but soon left to be a pupil of the distinguished alchemist and philosopher, Trittheim, bishop of Würzbrug. He afterward spent a season at the laboratory of Sigismund Fugger, in the Tyrol; then, after the example of the sages of ancient times, he made a tour of the various countries. It is affirmed that he went to Tartary, India and Constantinople. He was a persistent seeker after knowledge, accepting it with equal readiness from the learned and from persons in the humbler walks of life. He held the learning of the universities in low esteem and despised those scholastic discussions which turn more on theories and definitions than on actual knowledge. The skill of Paracelsus as a physician was highly esteemed. He was for some time a surgeon in the imperial army, and when he had taken up his residence at Basel he was consulted by Erasmus. At the recommendation of Œkolampadius, the Protestant reformer, he was made city physician and appointed professor of medicine at the university. It was no easy task that he set himself, the reformation of the art of healing. Luther in Germany, and Zwingli in Switzerland, had no harder task. He delivered his lectures in German instead of Latin, and taught new doctrines in medicine and philosophy. This created implacable hostility on the part of his professional rivals, who accused him of being without a medical degree. He would not prescribe and administer the

drugs sold by the apothecaries and they joined in the attack. He was compelled to leave Basel and led a roving life for several years. At length Duke Ernst of Bavaria, who was a lover of occult knowledge, gave him a home at Salzburg. But the unrelenting hatred of his enemies pursued him to this retreat, and he was treacherously murdered in September, 1541.—Dr. Alexander Wilder, in *Metaphysical Magazine*, September.

Equity Will Protect Incapacitated Persons.—It seems to be the general consensus of judicial opinion, says the court of civil appeals of Texas, in the case of Edwards v. Edwards, where a rehearing was denied September 18, 1896, that equity jurisdiction is maintainable on the petition of a "next friend," in cases where a person of weak mind has not been, or can not be, adjudged a lunatic by the special tribunal provided by law for that purpose, and yet is so far incapacitated by disease, decrepitude, or other infirmity, as to require the protection of a court of equity against the undue influence and fraud of others.

Medical Department Syracuse University.—The formal opening of the new medical college building took place at Syracuse October 5. About four hundred guests were present, and they were received in the lobby on the first floor by Chancellor and Mrs. Day, Dr. and Mrs. H. D. Didama, Dr. and Mrs. Nathan Jacobson, Dr. and Mrs. Alfred Mercer, Dr. and Mrs. John Van Duyn, Dr. and Mrs. H. B. Allen, Dr. and Mrs. A. B. Miller, and Dr. and Mrs. H. B. Elsner. In part Chancellor Day said:

I feel that we have great reason for congratulation to-night, reason to congratulate the city of Syracuse. Some of our citizens may consider us a burden, but were they to understand the merits of the university they would be with us in congratulating Syracuse that she has the university. The university is expending $1,000 per day in Syracuse every day in the week and of a year of 400 days. Have you any other institution in Syracuse that pays as good a dividend as that? Not even the street railway. I measure the influence more that comes from cultured brains. The city has been elevated in character by this institution. The university is contributing many sciences to the city and outlying country. To-night we open a new era. Now we have the best appointed medical college on this continent. We have made it solid and substantial. We have combined things which they have in the metropolis and some things which they had not thought of, and now we have a fine college with a peerless faculty. The college ranks with the best to be found. We are determined to make doctors. We want quality and not quantity. There are doctors everywhere, but the doctors you and I want are not so much in evidence. I ask that the faculty make as good doctors as they are themselves. I introduce to you Dean Didama with profound pleasure.

Dean Didama came forward amid applause and made a brief response to the Chancellor's remarks. In part he said:

Years ago the Geneva College moved to this city and reorganized as the Syracuse Medical College. The system at first in vogue sent out scores of doctors who were not capable to practice. A new system was soon adopted and this drove away many who desired to get a diploma rather than to deserve one. The new plan was a financial failure. Success followed later, however, and now we have facilities for doing work in six departments with the best methods and can furnish a four years' course.

The Dean gave a brief review of the faculty and spoke of the high standard of instruction which has been attained. Dr. D. M. Totman read the following telegram received by Chancellor Day from Andrew V. V. Raymond, president of Union University: "The medical department of Union University sends greeting and congratulation to the College of Medicine of Syracuse on this happy occasion." Another was read by the Doctor from Anson J. Upson, chancellor of the University of New York. Letters of greeting were sent by a number of prominent New York physicians.

Dr. Gaylord P. Clark of the faculty gave an interesting history of the new building. Dr. Clark reviewed the building from its start up to the time of completion. The structure cost $65,000 and two-thirds of that amount has been raised and was acknowledged in Dr. Clark's report. The building committee was composed of Hendrick Holden, J. B. Brooks and J. B. Clark. The old building was torn down early in the summer of 1895, and the present structure was started in July and finished about a fortnight ago. The building is four stories high and has a floor space of 24,000 square feet. It is spacious, well lighted and well equipped. It is heated by steam and the "direct-indirect" method is used for the heating and ventilating. It is lighted by both gas and electric lights. There are several large lecture halls on the first and second floors. On the third floor are the departments of physiology and histology, and on the fourth, anatomy and pathology. The floors are all of hard wood and the ceilings steel. The side walls are of brick and there is little chance for germs to accumulate. It is a modern building and was inspected with pleasure by the large number present last evening.

The address of the evening was made by Dr. Stephen Smith of New York, a former resident of the county. Dr. Smith was introduced by Dean Didama, and during his address he gave a review of the various systems of treating the sick, and contrasted the methods of years ago with those of the present time. "Natural talent is necessary in order to study medicine," said Dr. Smith. "The growth of medical schools in this country has not been entirely healthy. There is now some advance in sciences, and it is gratifying to note this fact. This college was the first to adopt a graded course, and now places itself in the front rank of medical colleges. The new building is well equipped, and the school enters now upon a new era. The school will of course suffer some competition. The best equipped physicians I find are educated in the smaller schools and simply complete their studies in a metropolitan institution. The college is to be congratulated upon having secured everything necessary to insure its future success. This school furnishes pupils ample opportunity to secure a thorough medical education." Dr. Smith's remarks were cordially received. Dr. Smith has enriched the library by the gift of his large private collection.

Hospitals.

ST. LUKE'S HOSPITAL, NEW YORK.—When the authorities of St. Luke's Hospital sold the hospital lands at Fifth Avenue and Fifty-fourth Street, they evidently were not aware that their title only conveyed the property for the use and purpose of a hospital and chapel. The matter has now come up in the shape of an unpleasant litigation.

BAPTIST HOSPITAL OF CHICAGO.—By the will of the late Mrs. Maria M. Foster the sum of $35,000 is bequeathed to this institution, which we believe has been, up to this time, wholly if not exclusively under the management of the medical sect known as "homeopaths."

Change of Address.

Bourns, F. S., from 65 Capitol Av. to 404 Grand Opera House, Atlanta, Ga.
Carroll, C. C., from Poughkeepsie to 509 5th Av., New York.
Heise, E. H., from Bay View, Mich., to 2315 Washington Av., Chicago.
Lundgren, C. E., from Jamestown to 455 Pacific St. Brooklyn, N. Y.
Malone, L. A., from 427 Senate Av. to 119 N. New Jersey St., Indianapolis, Ind.
Moody, H. A., from Bailey Springs to 311 Congress St., Mobile, Ala.
Peck, George, from Cooperstown, N. Y., to 926 N. Broad St., Elizabeth, N. J.
Rosser, J. C., from Grand Rapids to Rosser Hospital, Duluth, Minn.
Yeaman, H. W., from Philadelphia, Pa., to Pier 14 Red Star Line, New York.

LETTERS RECEIVED.

Ayres, S. C., Cincinnati, Ohio; Anderson, Willis S., Detroit, Mich.
Bradner, Henry, Benkelman, Neb.; Berry, J. T., Brandon, Miss.
Demaree, Owen B., Benson, Ky.
Castor, H. C., Indianapolis, Ind.; Cullen, C. R., Gaines Mill, P. O., Va.
Erwin, C. R., Chicago.
Gray, Wm. B., Richmond, Va.
Haag, D. E. Toledo, Ohio; Hummel A. L. Adv. Agency, New York.
Johnson, H. L. E., Washington, D. C.
Kress & Owen Company, New York.
Little, C. H., Detroit, Mich.; Latta, Samuel W., Philadelphia, Pa.
Miles Jacob F., Philadelphia, Pa.
Newton, R. C., Montclair, N. J.
Oliver, Chas. A., Philadelphia, Pa.; Open Court Publishing Co., Chicago, Ill.
Parkinson, James H., Sacramento, Cal.; Payne, Geo. F., Atlanta, Ga.; Parke, Davis & Co., Detroit, Mich.; Pope Mfg. Co., Hartford, Conn.
Riley, W. H., Boulder, Colo.; Rohé, Geo. H., Sykesville, Md.
Staples, Franklin, Winona, Minn.
Thayer, Chas. P., Boston, Mass.